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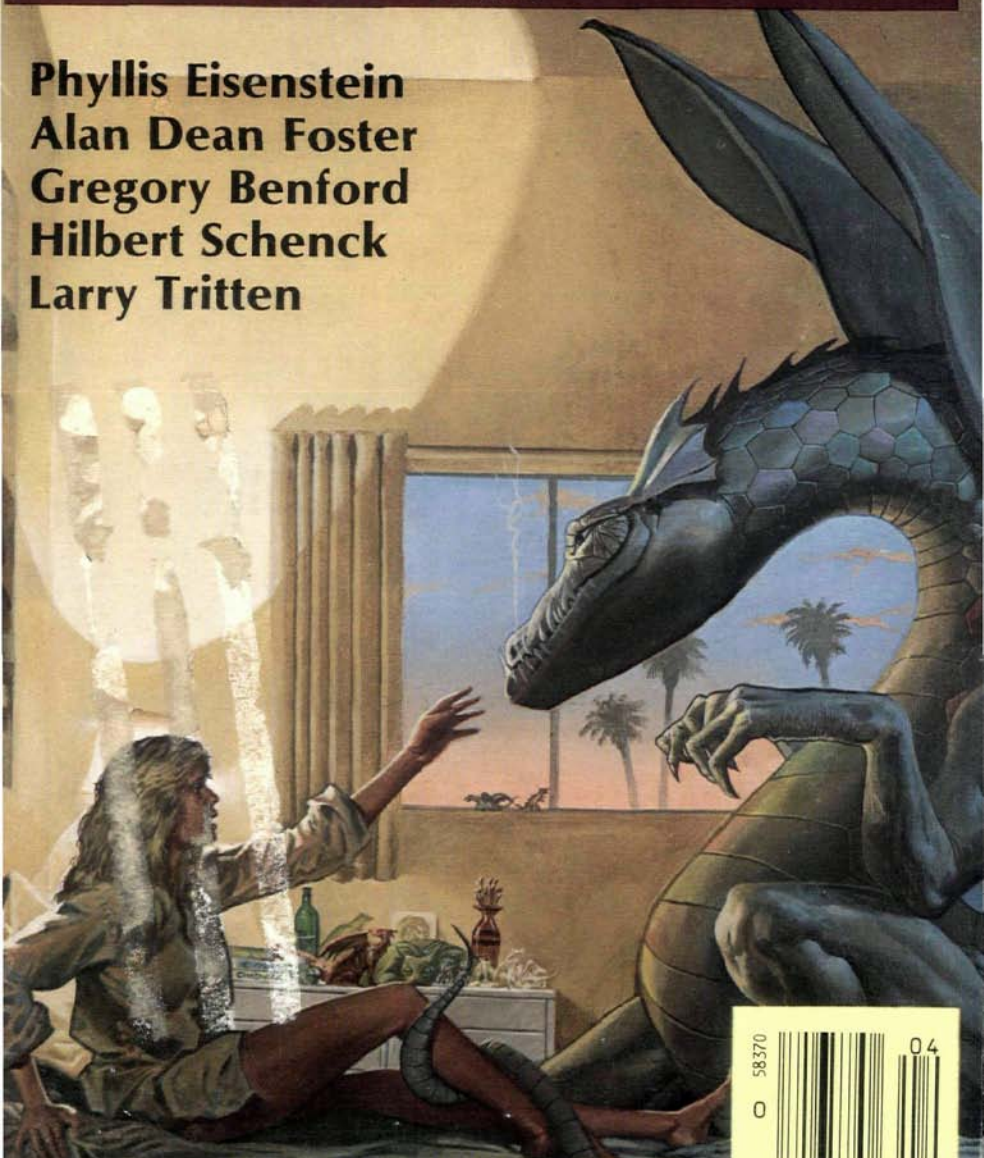

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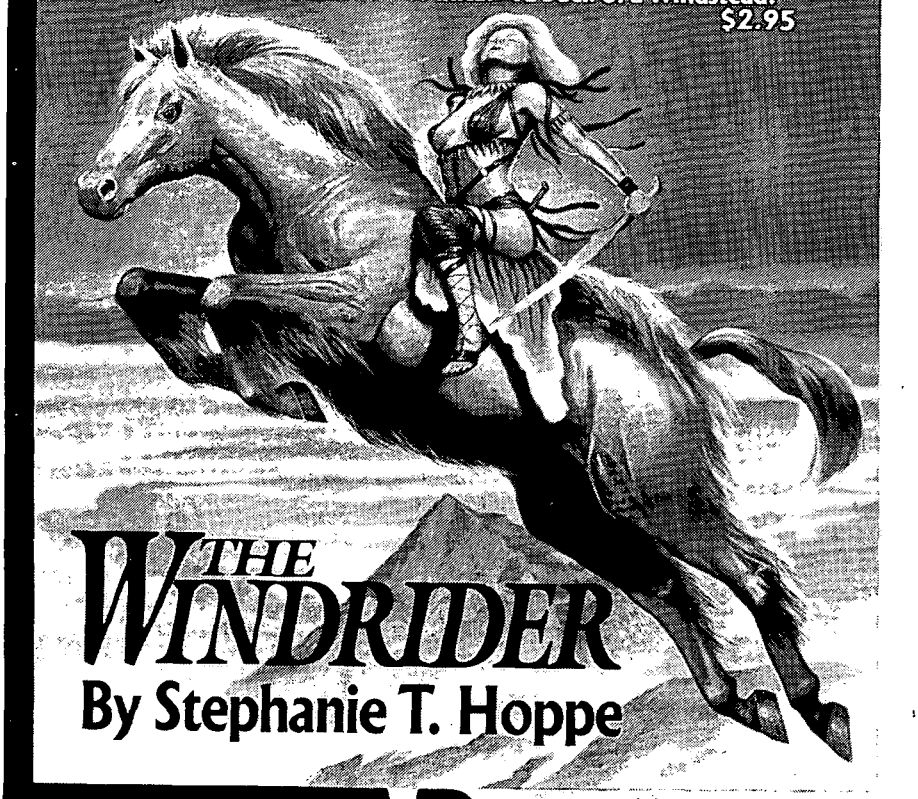

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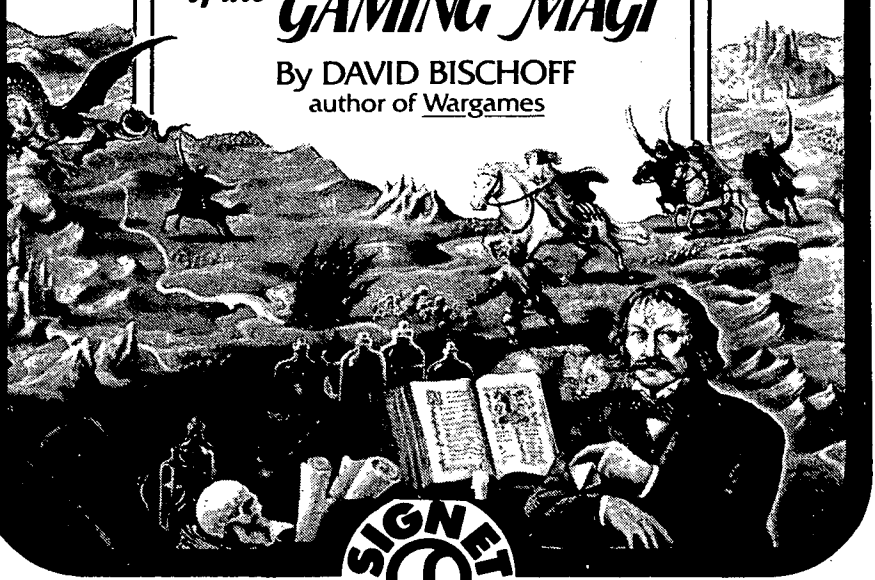

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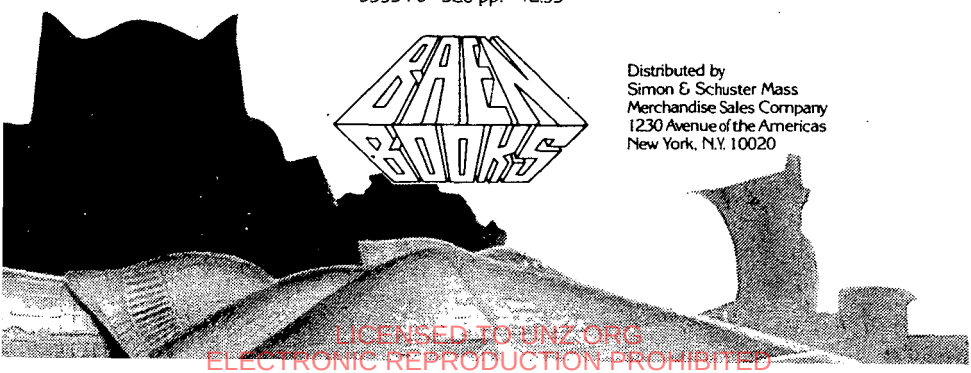

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Hilbert Schenck ("Steam Bird," April 1984) redirects his attention to the scene of much of his finest fiction, the ocean, and to something very large that lives therein.

Send Me A Kiss By Wire

BY
HILBERT SCHENCK

I

The big *Challenger* auditorium was already jam-packed when Dr. Walter Bascom, dean of the Oceanography School, pushed through the milling crowds of students, staff, and press people looking for seats. Way down front, surrounded by his usual entourage of vice-presidents and main-campus deans, the ancient university provost, Jacob Holley, instantly spotted Bascom and gave a large and commanding wave in his direction. The small dean, exhausted from a month's cruise following North Atlantic currents, his thin face stiff and icy, pushed into the provost's row while nodding at, or tersely greeting, various important academic bureaucrats. The provost had managed to move some less vital functionary from the seat at his right, and as the dean settled down into it, the gaunt, lantern-jawed Yankee gave Bascom a robotlike smile and muttered, "Wonderful thing. Just what the place needed, Walter, money and fame," in a voice that the engineering faculty described as a "talking live-steam leak."

Holley's iron-hard face reflected no warmth onto this verbal praise, for he had recognized in Dean Bascom's tight expression a decided lack of sympathy with the proceedings in the auditorium. Bascom turned in his seat to face the taller provost, and though his voice was very quiet, it had the sharp edge of an ice sheet snapping apart. "Whom do we get to fight with this creature, Jacob?" he said. "Fraternity pledges? All our assistant professors in jogging shorts?"

Holley's lined face became, if possi-

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"Walter, this so-called State of the Union and its huge and valuable university are *dead-broke!* If, in order to catch the attention of the state legislature, it becomes necessary to feed to your wife's monster the half a dozen or so virgins among our ten thousand co-eds, then it will be done — instantly! Do you understand that, Walter?"

Dean Bascom, managing to actually outhiss the provost, pressed his lips into an invisible line. "Virgins, Jacob, are exactly what we *ain't*!" he retorted.

To a couple of nearby wire-service reporters, this intense and highly charged exchange was simply mysterious, but to the university officials sitting around the provost, catching a word here and there, the problem was clear.

Dean Bascom, a most eligible faculty bachelor for many years, had finally married Dr. Emily Orton, a full professor of biological oceanography in his school. Less than a year later, Emily Bascom had organized a "World Record Octopus Derby" in conjunction with the Saturday afternoon TV show *Wide Sporting World*. Scuba divers in Alaska and Puget Sound were recruited in droves, and the animals were attracted from their caves and grottoes by a water-soluble chemical, pararitalitic acid, which Emily had discovered [illegible]

world-record octopus was matched in an underwater wrestling contest against a huge scuba-diving pro football player. When it became obvious that the hulking diver was being strangled and would surely drown, over a dozen curare darts fired from three different gas guns were required to subdue and finally to stun the strong, fierce animal, all of this photographed by several underwater camera teams. This Clyde Beatty ending to the octopus project, even though much had been learned about the species, had amused the world oceanographic community, dismayed several environmental groups, and enraged Dean Bascom, who had been assured by both the TV people and his wife that the broadcast material would be educational and scholarly.

"O.K., O.K.," called out a large middle-aged woman from the platform up front. "Some of you will have to sit on the floor, I guess. Please, let's get going."

Dr. Emily Bascom's round, cheerful face scanned the choked, noisy auditorium, and when she saw her husband down front with the main-campus crowd, she smiled and gave him a small, tentative wave, which he did not return.

Her expression tightened a bit, and now she shook her arms impatiently. "Please, can I douse the lights?

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The lights dimmed and went out, and Emily Bascom's loud, clear voice dropped into its lecturing tones. "Here's the film that started all of this. It was taken twelve days ago off the stern of an oil-search vessel, *Sonic Hunter*, by a young Japanese crewman who just happened to have a loaded super-eight camera in his duffel when the episode started. Thank heaven he remembered he had it!"

The big color image was jerky and grainy, and at first all they could see was a calm blue sea with two stanchions and the horizontal parts of a ship's rail in the foreground. But then, far in the distance, there was a sense of disturbance in the water.

"The *Hunter* was towing a one-hundred-foot-long acoustic pulse generator at the end of six hundred feet of line," she explained. "This is new sub-bottom profiling equipment, and I can't say any more about it other than that it sends down a series of quite sophisticated, shaped sonic pulses to penetrate the sea bottom. Echoes are received by transducers set in the bottom of *Sonic Hunter*'s hull."

Suddenly everyone in the room gave a gasp, for the amateur cameraman had finally remembered his zoom lens, and as the image was quickly and jerkily enlarged, a now clearly seen, long, whippy *something* rose out of the water, followed by several more. These lashed about in the air, making white splashes as they struck the blue sea surface.

I've studied blowups of these movie frames," said Emily Bascom, "and we're definitely looking at a huge *Architeuthis*, a giant squid. Evidently the creature was attracted and brought up by the acoustic pulses from the towed sound generator."

She gave her audience a reassuring nod. "Now that isn't as weird as it sounds, although nobody ever thought about squids using such classy acoustics. But some fin whales definitely speak through the deep sound channel to contact each other over distances greater than a thousand miles."

The TV producer, his many assistants, plus other important network people sat in a large clot down front next to the university administrators, and now the thickly bearded, white-leather-shoed producer waved a hand. "What are these animals doing all this talking for, Dr. Bascom?" he asked in a smooth voice.

The large woman gave the whole room a wide, round smile. "Oh, the tender passion, of course," she said quickly. "They're just seeking a special friend in a big, lonely world."

But now the audience gasped again, for whereas the arms of the creature had seemed to flop and move about quite languidly for a while, they now began to wave vigorously and with what was clearly a great deal more excitement.

"Somebody on the *Hunter* realized that the signal they were generating had probably brought the thing up,

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so they shut it off. That was a mistake," laughed Dr. Bascom, and they saw that the squid's arms were getting larger as it moved rapidly and thrashingly toward the stern of the survey vessel along the towline.

"It evidently mistook that thick towline for a friendly tentacle," said Dr. Bascom, "so it moved along the line looking for where the noise went. When it got about fifty yards back, the captain lost his nerve."

As she said this, they saw waves begin to form against the creature's wildly waving arms while a wide, foaming wake suddenly appeared in the center of the picture. The agitation in the water began to get smaller, and in a few moments the image of the creatuare's arms had become so small that only a spot of white-water confusion showed on the wide, calm sea surface.

"The *Hunter*'s skipper went full speed ahead, and the line towing the signal generator — and now also towing our large, agitated friend — simply broke under the strain." Dr. Bascom shrugged. "That's the last they saw of either the squid or their hundred-thousand dollar acoustic toy."

She turned the room light up a bit and motioned for a slide projection. "O.K., our TV friends — " she gestured toward the large group — "were contacted by the oil-survey company and flew to meet the boat in Dakar. They brought back the film you just saw, some shots of the crewmen telling their stories, plus an agreement that nobody on the boat will say anything about this until they dock in the U.S., which happens today. Tonight the network will air the first of its specials on *Architeuthis,* including this film and a discussion of our hunt for the animal."

She pointed up at a projected side view of a giant squid with various dimensioned arrows superimposed on the image. "We figured out from the camera optics, and what we knew about the location of the sound generator in relation to the stern of the vessel, how big those arms and tentacles are.

"Most Teuthologists" — Dr. Bascom paused, then interjected with a grin. "That's the name for us crazies who like to fondle squid, octopuses, and cuttlefish — set the upper limit on *Architeuthis* at about 1,000 pounds, with a total length of maybe 60 feet. This big boy is in a whole other class. From the scaled measurements, we estimate his weight will be a hefty 25 *tons,* and his total length will go way over 200 feet. Now the blue whale still holds the title for bulk, about 180 tons, but this animal wins any length sweepstakes hands down. Nothing living and moving, now or then, has ever been as long as he is. The largest blue whale was less than 120 feet overall."

She touched the big image with a long pointer. "Those arms, and there are eight of them, are a solid 6 feet

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across at the root and about 40 feet long. The two longer tentacles, which *Architeuthis* uses to catch its prey, are over 130 feet long in this specimen, a structural miracle even for a water creature. The suckers at the club end of those tentacles and arms are over 8 inches in diameter. Even the biggest sperm whale or the most violent great white shark would have a helluva fight with this fellow!"

As she paused for breath, the TV producer gestured at the slide. "How do you know it's a boy, Dr. Bascom?" he asked in a casual tone.

Emily Bascom directed her pointer at two of the arms. "In the film blowups, we can see that the creature has two hectocotylized arms, that is, specialized arms without suckers. When a male squid hugs his ladylove, he uses these two arms to make the adjustments. Otherwise, those eight-inch raspy suckers would chop her into fillets."

The producer chuckled briefly at this, then pointed with a languid hand at the image. "So, can I assume that tubular thing poking out of the — what is it, the 'mantle'? — is the thing's sex organ, its penis?"

Emily Bascom's cheerful, pleasant expression became a bit harder. "Some people have claimed that, but I'm not sure it's an intromissive organ. Since nobody has ever had a live male and female together in an aquarium, their mating methods remain speculation," she said in a stiff voice.

A silence fell over the auditorium as the producer peered in apparent puzzlement up at the high ceiling. The network's large, fleshy vice-president for contract and legal matters, sitting next to him, finally turned and said in a clear voice, "Intromission is what us legal types call 'penetration,' Harry. What we used to call 'getting in' when we were fourteen."

The producer continued staring at the ceiling. "I was a choirboy when I was fourteen, Ben," he said loftily. "I didn't use phrases of that sort." This was followed by sniggers from the other TV people and laughter from the students and most of the faculty.

The producer now turned a more alert gaze back to the projected slide. "How long would that, uh, possibly intromissive organ be, Dr. Bascom?" he said.

Emily Bascom's eyes were now quite thin and her voice was tight, but she took a breath and shrugged. "Oh, three hundred centimeters, about ten feet, I guess." she answered.

The producer sat up a bit straighter. "That would be some sort of zoological record, wouldn't it? Ten feet?"

Dr. Bascom put her hands on her hips and faced him. "Look!" she said fiercely. "This creature has eyes that are over three feet in diameter, real eyes that it sees with! That and those forty-meter tentacles are the great miracles of this thing, not some stupid sex organ that nobody knows a damn thing about!"

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But the producer had relaxed back into his chair, and his smile was both broad and comfortable. "Think of that, Ben," he said in an awed, wondering voice, "ten feet long. I foresee quite an audience share with this series."

The large lawyer half-frowned in what was obviously a mock concern. "Harry, I hope you're going to keep this a family show?" he said in a tone of complete insincerity.

The auditorium again filled with laughter, but the frost surrounding Dean Bascom's stiff, small form was now so chill that even the provost twisted uncomfortably. Holley half-waved, half-pointed at Emily Bascom. "Dr. Bascom," he said loudly, "would you tell us something about the financing of this research effort?"

The woman snapped her fingers for a new slide. "The network is chartering *Glomar Explorer* for us. As some of you know" — and she pointed up at the side view of a large motor ship — "this vessel has a center well and lowerable platform half its length. As you see, the cage will be suspended beneath *Glomar*'s platform, and we'll use another oil boomer to try and coax the squid inside." She paused, then nodded at the contract lawyer. "Mr. Bernstein, would you like to spell out the money stuff for Dr. Holley?"

"Just a tad under five million for the whole thing," said the paunchy lawyer in an almost-bored voice. "Two of that for refit and charter of *Glomar,* another one-five to Perry Subs for hire of their *Gemini* photo-sub pair, the mother ship, staff, and pilots. The remainder goes to you people for your time, project management, and overhead." He paused, then added in a silky tone, "Over one million for overhead, sir."

The dean had turned again toward the provost. "Even our co-eds won't be big enough for it, Jacob," he said in a frozen whisper. "What about finding a female elephant in rut and cramming her into an oversized scuba set?"

The provost did not find this suggestion amusing. He leaned menacingly toward the small dean. "A million dollars is a lot of money, Walter, even when you said it fast," he gritted back, but the dean made no answer, and the auditorium was now alive with excited questions from the faculty and press people.

II

The flotilla that finally gathered in the mid-Atlantic three weeks later was the largest ever assembled to study a single species. In addition to the *Glomar* and its gigantic, hastily constructed cage held by cables under its center well was the somewhat smaller *Mother Gemini* catamaran support vessel, mounting a midget two-man sub on the stern of each hull.

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The Coast Guard had provided a big offshore cutter, the *Dauntless,* for helicopter support off her own large stern platform, while the navy, thanks to a letter from the White House, sent its most advanced remote-sensing vessel, *Argus.*

The first three days were rough and blowy, and everyone rushed around in agitated concern for the huge, fragile cage drawn tight against rolling *Glomar*'s bottom. But then the South Atlantic weather turned fair and quiet, and the convoy put down its lure and steamed at a leisurely five knots, waiting for a strike.

Emily and her husband shared a table with the *Glomar*'s captain and chief engineering officer, but they spoke only on project matters and each had a separate stateroom. After the weather turned pleasant and the hunt began in earnest, Emily waited until her husband stood alone on the fantail, then approached him with a large but fragile smile.

"Walter," she said earnestly, "there was no other way to do this. And if we don't get to understand these animals right now, the oil boomers may confuse and finish off whatever few of them are left." She peered at him directly, but his face remained stiff.

"Circuses should stay under tents," said the dean in a bitter voice, and when this caused his wife's big face to droop, he gestured defensively. "Look, Emily, the beasts and the fish are innocent, don't you know that? What they do is God's will alone. They can't know sin and they don't know lust as we do. All this suggestive coarse stuff isn't just scientifically abominable, it's plain *stupid,* too!"

But Emily Bascom had made the conciliation efforts, and now her eyes shot angry fire and she set her big jaw. "As if that gigantic, beautiful animal gave one damn about what you think!" she snarled at him. "You really should have been a priest instead of an oceanographer, Walter. Then you could tell *everybody* just how to act ...."

This hurtful exchange was suddenly ended by a series of shrill shrieks from *Argus*'s steam whistle. Both Bascoms turned on their heels and ran headlong down two ladders and forward to *Glomar*'s operations room. Others were running in, too, and Emily had to shoulder her way to the main communications console and seize a microphone.

"What's happening, *Argus*?" she said in a rush.

"We have a target," responded the *Argus* Ops room. "Moving target! Bearing: two-three-five; true range: thirty-six hundred meters; depth: fourteen hundred meters. Mark! We've got a first track. It's heading right for us. Total velocity about one meter a second, and it's rising at about half that. We're trying to access it now with a laser. Hang on!"

Emily pressed the *BRIDGE* button

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on her mike. "Captain Jorgenson," she said, "start to slow us up. I want us at dead slow in ten minutes, but don't do anything abrupt."

"Aye, Professor Bascom," came the reply, "I'll ease her back."

"*Mother Gemini!* This is Bascom. Launch! Launch! We have an approaching target!" she said over the microwave intership link.

"We loaded our crews when we heard the *Argus* message, Dr. Bascom. We're lifting the boats now," came the answer as *Mother Gemini*'s deck force swarmed around the two chrome-yellow subs and the A-frames began hefting the boats up off their cradles.

"Can we get a laser image, Commander?" said Emily in a tense and quiet voice.

A uniformed officer, the liaison representative from *Argus,* squinted at the snow-filled screens. "They're trying, Dr. Bascom. It's a long ways off yet. Wait ... wait ... there's something!"

"We're focused," came an excited voice from *Argus.* "You can see it! Center screen on A channel!"

Everyone in the room left their consoles and gathered behind Emily Bascom and the tall officer, every eye intent on a tiny blob in the center of a flickering TV monitor screen.

"Can you harden that image up?" said Dr. Bascom to *Argus,* peering with fixed, narrowed eyes.

"If we enhance it any more, we'll lose it completely," came the voice. "Let me just try a shorter focus space...."

"Ahhh...." came from every person in the room as the tiny blot on the screen resolved, ever so slightly, into a sharper blot with a sense of arms, now and then rippling at its edge.

A pool reporter stood on tiptoes, staring in wonder at the image. "That thing is two miles away and almost a mile down?" he breathed in wonder. "How in hell can you do that?"

The officer shrugged. "We're generating a thirty-megawatt blue-green laser pulse, maybe a nanosecond long. The light pulse is thin and short, like a pencil, when it leaves the projector sticking down underneath *Argus,* but it gets all smeared and scattered as it travels down into the turbid water, and finally illuminates a small bit of that target animal. But we keep the receiving photocells shut off until the undisturbed part of the original light pulse has been reflected back to *Argus* from the target, then we turn on the receiver for a nanosecond. It's called 'range-gating,' and it prevents the smeared, confused part of the light pulse from getting into our reception system. The beam is a small spot, so we have to scan the target, like a TV raster. We're assembling about one image per second now."

"*Mother Gemini,*" said a tense Emily Bascom, "let me talk to your

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submarine pilots, please."

"Talk away, Dr. Bascom," came a voice from the speaker. "We're in the water and heading for the cage."

"No lights! No lights yet, you understand?" she said quickly. "And no high-level acoustics. Lay back from that cage until we get him inside. I'll tell you when to turn on the lights. We don't want to spook him with the strobes."

"Understood. Affirmative, Dr. Bascom," came the answer.

Now the room was utterly silent as they watched the tiny rippling image grow and fill out into what was obviously a purposefully jetting *Architeuthis* of awesome size.

"Slower, Captain Jorgenson," said Emily Bascom sharply. "We'll lose the *Gemini* twins. Easy!"

The naval officer from *Argus* frowned, then turned to Emily. "As the visual field enlarges, our image-assembly time is going to get pretty long, Dr. Bascom. We figure over a minute for one complete frame by the time that thing reaches the cage. What about the side-scan sonar? We can get a continuous high-res. moving image with acoustics when it's within a thousand yards or so."

Emily Bascom nodded. "We'll chance it. I don't think the side-scan acoustics will spook him. The pulse format from that oil boomer that he's responding to is totally different."

"Give us a ten-meter grid on that target, *Argus,*" said the officer, and when the grid lines were superimposed over the image of the squid, Emily saw that this was probably the same big male that had come up to the *Hunter's* signals. On it came, growing in size and detail.

She spoke into the mike. "*Argus,* let's try the side-scan now. Hold your power level as low as possible. Go!"

At once the acoustic projector located in a keel-mounted bubble on *Argus's* hull began to scan the creature with a tight sonic signal. This picture was far more detailed than the one given by the optical laser, and another gasp went up as the writhing arms and a gigantic, round eyehole suddenly showed on the TV monitor, spookily white against the dark, no-return image of the water.

Even the TV producer was awed by the obvious strangeness of the creature. "Ben," he said to the lawyer in a whisper, "imagine reeling that thing in off Montauk!"

"When you put five million bucks on the hook," said the overweight, grinning lawyer, "it's amazing what you reel in."

Argus was running to port and a bit ahead of *Glomar,* so that the sonar framing geometry was showing the rear edge of the cage. "Here he comes...." said everybody together in a kind of sigh.

Sure enough, the gigantic animal, slowing a bit, rose into the cage and threw out two thick arms to grasp the long, bulbous acoustic signal

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generator suspended in the center.

A peering Emily Bascom leaned forward. "O.K.," she said softly, as though she feared she might frighten the huge creature, "start closing up the cage."

The *Glomar* crewman in charge of the cage door winches began to lift the suspended door up to cover the open cage bottom. "Now," said Emily in a tight and breathless voice, "You! *Geminis*! Light him up!"

The *Gemini* boats were, at best, fraternal twins, looking very different from each other in both side and plan views. *Gemini One* was a thin, graceful submarine with two big navigation domes and a battery of optical and television cameras grouped in her transparent nose. *Gemini Two* was much bigger and fatter. She mounted four long arms that could be swung out to form a large underwater cross that held an array of xenon strobe lamps. *Gemini Two* contained a two-hundred-horsepower diesel generator set fed by a towed, two-pipe snorkel to power these lights. The strobes were flashed twenty-four times a second to match the image rate of the three-thousand-line TV scan of the *Gemini One* cameras. The lights were so intense, so unimaginably bright, that to viewers on *Glomar*'s deck and up in the small photo helicopters, it seemed as though a sudden and unending explosion of fearsome magnitude were continuously happening underwater alongside *Glomar*.

In the Ops rooms, the biggest TV monitor presented them with a brilliant full-color underwater picture of the male *Architeuthis,* and the whispers were stilled, for the vast animal was utterly visible in a totally detailed image. Its huge left eye peered unblinking and implacable at the sudden bright light, but its arms still rippled and fondled the signal generator while its tentacles, too long to be fully imaged by even the widest-angle lens on the closing *Gemini* twins, snaked in and out of the picture.

The cold, unblinking eyes of the cuttlefish and the squid, plus their sharp beaks, have always suggested to students of the ocean a kind of zoological epiphany for the alien ferocity possible in the great deeps of the planet, but it was evident from its motions that this creature was patiently seeking some configuration or relationship with the bulbous sound generator that eluded it. There was no sense of fierceness in these stroking and waverings, only puzzlement and a sense of some impatience.

Walter Bascom had been silently watching all this, standing at the back of the crowd around the TV monitor. "Poor, lonely bastard!" he said in a low voice to no one in particular.

And Emily, her great triumph now before them all in stunning, three-thousand-line color, felt it all spoil and turn sour as she stared at the huge, agitated creature attempting to turn an unyielding oil boomer into

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something very different. If he was all that was left of them, the very last of such an awesome clan, they were too late, and everything was futile and stupid. Emily Bascom stared down at her hands and blinked. How many years, she wondered, had this huge creature been searching for its moment of satisfaction?

"Target! *Close* target! Look! MY GOD!" came the sudden near screams from both *Argus* and *Mother Gemini,* and at that instant on the screens they all saw something shadowy, vast beyond imagination, hugely rising behind the cage and the bewildered, fondling male squid. At that moment *Glomar* gave a decided shudder, followed by a fearsome series of crashes and rending noises.

"ANOTHER SQUID!" came the simultaneous transmissions from all the ships and aircraft of the fleet as two great, muscular arms, each thicker than a Greyhound bus and longer than a city block, snapped around *Glomar's* midsection and began to vigorously squeeze and shake the nine-thousand-ton vessel.

Several people in the Ops room fell down at that point, while others wildly grabbed at each other or the equipment rack handles to stay on their feet. "Open that cage!" shouted Emily Bascom into the mike. "Shut off the boomer signal! Quick!"

The mounting noises of *Glomar's* destruction masked most of this final command, for the new arrival had seized the hull in four or five of its massive arms and was now applying its huge, horny beak to the hull plates. When a large vessel is torpedoed or smashed apart by gunfire, her breaking-up noises are often lost in the sounds of fire and explosions, but what the people on *Glomar* always remembered about those next few minutes was the deafening, fearful noises of a steel ship being torn, rent, and smashed by a totally silent and ferociously active adversary.

To their eternal credit (and the enrichment of everyone connected to Perry Subs, Inc., which had cleverly held out for a half-interest in all the film and tape taken from the boats), the two *Gemini* pilots and their crews not only kept the strobes and cameras going, but began maneuvering to get a large field of view. And what the astounded viewers on the other ships now saw was a female *Architeuthis* of a size wholly beyond speculation, over twice as long as the still-oblivious male and an order of magnitude heavier.

She was indeed the great kraken of Norwegian legend, but far, far larger even than that shadowy wonder. Nothing in the ocean would stand against this gigantic queen of deeps and darkness. Nothing, even at the peak of the dinosaur age, in or out of the water, could match her musculature. In a single stroke of a single tentacle, she could turn the head of the oldest and strongest sperm whale to

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bloody mush or smash a four-ton white shark in half. Her anger was as ponderous and monumental as her body, and she realized at once that her smaller consort was somehow bewitched and trapped by a large, hostile floating creature, *Glomar Explorer.*

Discovering that her fierce beak was having problems penetrating the lower hull plates of the vessel, the squid began a series of smashing blows on the deckhouses and upper works with her various arms and tentacles. These appendages, weighing between twenty and thirty tons each, were lifted out of the water over the listing vessel and brought down clublike at high speed. The first full smash, striking aft of the stack and with a shock that shook everyone aboard off their feet, almost broke *Glomar* in two. Fortunately, everyone belowdecks made a dash for the life jackets and the open air at the first series of crashes, so that no one remained in the flattened compartments and sheared, jagged steel that had once been the ship's center cabins. The squid now found she could get her ten-foot beak into the shattered-steel confusion of *Glomar's* midsection, and commenced a terrifying series of rippings and rendings. The Ops room people had dashed up two stairways and out onto the forecastle deck by the bow, and now they stared back, dazed and open-mouthed, at a shambles of smashed lifeboats and crushed cabins.

"How in God's name can it rip steel like that with a beak of bone!" screamed the TV producer at the shocked, sagging faces around him.

Walter Bascom, who was carefully tying on a big cork life jacket, turned and gave him a thin smile. "The same way a karate chop goes through a brick: with plenty of momentum and plenty of will!"

The gigantic squid found this slashing and biting entirely too slow to satisfy her vast irritation, and she now struck the stern a mighty double blow that broke it away completely. The *Glomar,* which was already listing heavily to port, now began to go down by the stern like a rock, her bow tilting and rising rapidly. The creature interpreted all movement as challenge from her enemy, and loosed her final, most terrible stroke at the rising bow, catching the vessel just in front of the bridge. The stunning, thunderous shock threw everyone clustered up at the bow into the water, some with lifejackets and some without, and as the partly dismembered *Glomar* settled rapidly, the rest of the crew and staff jumped desperately from the tilting sides and rails and paddled away to escape the suction of the sinking wreckage.

Walter Bascom had been standing close to the impact point of this final devasting blow, and as he was catapulted off the slanting deck, his lower right leg was struck and deeply slashed by a tilting, ripped deck plate.

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The pain had that sudden and complete authority that told the dean that he was grievously hurt. After a gasp at the initial shock of the cold water, he doubled over and put both his hands around his right calf. The entire back of his right leg from ankle to knee was cut loose, hanging, and his chill hands felt how warm the pumping blood seemed in the cold water. He gripped tightly with his hands to hold his leg together and slow that flowing warmth.

At the first sight of the squid's flailing arms, both *Dauntless* and *Argus* had stopped and launched several power lifeboats, and these now chugged stoutly toward the devastated *Glomar* and the raging squid. The two TV helicopters were far too small to take even one person aboard, but *Dauntless* carried an eight-passenger rescue machine, and this was started and lifted into the air at about the same time that *Glomar*'s stern was sheared off. It was obvious to the officers on both ships that the people shaken off the bow were in the most danger, and so the Coast Guard machine made straight for them, settling down in the middle of a cluster of heads.

Walter Bascom struggled to reach the helicopter's port pontoon, where a young crewman crouched and held out a hand to help him up. "I've got a cut leg, son. I'm bleeding," he said weakly to the boy.

"I'll get you up, sir!" Just give me your hand!" shouted the crewman, but then several things happened at once. Off to starboard of the helicopter, no more than twenty yards away, a broad island of gray, scarred flesh and seething malevolence emerged, dripping and ponderous, and in the middle of that gray mountain of squid mantle was a monster eye, rising through the interface, an orange, baleful harvest moon of hostility. Seeing the helicopter and assuming its connection with the shattered *Glomar,* the creature struck at the machine with one of her arms.

The animal's bifurcated vision, with half the eyeball in the water and the other half in the air, confused the squid, and her first gigantic attempt at flyswatting went wild by ten yards or so. The splash from that nearby stroke nearly swamped the helicopter and stalled both its engines.

Walter Bascom had been distracted from the awesomely emerging squid by a thin cry for help some distance away. He saw it was Emily and that she was waving one hand in obvious distress. "Help me!" he heard his wife cry. "I don't have a life jacket!"

"Quick!" said the Coast Guardsman. "That thing is after *us!*"

Walter Bascom turned, let go of his leg, and began to swim toward his wife. "Get out of here!" he shouted back at the helicopter, "I can support her with my jacket!"

A second arm was emerging from

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the water about forty yards off, and the pilot desperately cranked his blades around, his starters whining, until the soaked engines finally caught, and the big machine began to skitter uncertainly across the sea surface. Sensing that with a downward stroke, she would probably miss such an evasive target, the squid rounded on the helicopter with a third arm. The arm left the water in a low hissing arc of foam and spray and caught the staggering machine much as a batter will occasionally catch a baseball bouncing off home plate and golf it up into the centerfield stands.

The big machine was instantly changed into a disintegrating mass of black shapes flying up and out amongst fiercely roaring arcs of flaming gasoline. To the squid, this explosive reaction to her blow was only more defiance and more challenge. Few living things ever completely forget or ignore the possibility of escape when a struggle becomes too uncertain or protracted, but the first part of the flight/fight reaction had atrophied in the ganglia of this immense creature, and she now began to jet toward the flames and figures in the water, her two arms poised for striking while her huge beak snapped open and shut so loudly in her red rage that the *Gemini* pilots claimed later they could hear these fierce clicks over the noise of *Gemini Two*'s roaring diesel.

Walter Bascom reached his wife and drew her shivering arms around him. "Hold on, Emily," he said. "This thing will keep us both up. It's only Sea State Two."

"Oh, look!" she gasped, and the dean saw over them a four-hundred-foot-long tentacle rising to join the waving arms, rising endlessly out of the water like a gathering waterspout, like the big atomic funnel over Bikini.

The dean felt his warm life running out into the cool water, and he put his arms around his wife. This was a very calm way to go, he thought, really very painless. " 'Bye, 'bye, Emily," he said. "I can't say it hasn't been exciting."

To a peering Emily Bascom, the view showed only ruin and disaster in every direction: the *Giomar* rolling over slowly for her final dive to the bottom; raging gasoline fires and dismaying black shapes floating all around them; and, worst of all, *Dauntless,* an angry white mother goose coming to save her brood of lifeboats, her siren screaming, was digging her heels in on a tight, high-thrust turn toward them while on her forward deck her gunners had the canvas off the 4.3-inch rifle and were desperately elevating the weapon to try a shot at one of the huge arms that quivered, cobralike, above the scene.

Tears came to Emily's eyes, and her head fell forward against her husband in dismay and defeat. "You were right, Walter. This was a lousy idea," she said in a small, shivering voice.

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But the light-headed dean, woozily cheerful from the wound shock and the numbing water, just shook his head. "No, no, Emily. What is the price of true wonder, anyway? It's everything, Emily, *everything*!"

That was all that the dean was able to say, and he slipped down and down into a velvety, pain-free blackness. Yet it seemed to Walter Bascom that this darkness inverted and bloomed and filled with a bright, clear light, so that he floated no longer in an ocean of dark water but now in an ocean of pure, sweet illumination. Around him swam the great creatures of the planet, no longer scarred and fierce, but made perfect and beautiful; washed in the Blood of the Lamb.

"Come, Walter," said Saint Francis, taking his hand, "come and meet my friends," and the dean filled with a joy greater than any he could ever remember.

III

Walter Bascom opened his eyes and knew at once that he was in the ship's dispensary bed. He looked to his right and saw another neat cot containing a quiet figure obscured by bandages and I.V. tubes. On the wall was a fire-hose reel stenciled *Dauntless, CG 582*. He looked to his left and saw a pert, redheaded nurse with "U.S. Coast Guard" across her cap and lieutenant (jg) bars on her open collars, seated and staring wanly at him. "How do you feel, Dr. Bascom?" she said.

"Weak," said the dean. "Did I lose my leg?"

The nurse shook her head, smiling. "Goodness, no! That wasn't the problem. You lost most of your blood out there in the water. We really pumped you up, Dr. Bascom. We went into both arms at once."

"What about my wife's pets?" asked the dean, and when he saw the young woman did not understand him, added: "The squid — uh — I mean squids?"

Her eyes sparkled. "My, that was something else, wasn't it! I've watched those movies three times already. Well, after she just *totaled* our helicopter, everybody thought you and your wife would be clobbered next. And they didn't dare shoot at her head — well, I mean 'mantle' — 'cause you were so close to her. But just when it seemed like she would flatten you with one of those gigantic, absolutely *humongous* arms, the smaller squid finally got out of his cage and swam underneath her. The *Geminis* got pictures of all that. It's sort of sweet, actually. And the moment he touched her, well, she just lost interest in us completely and sank right straight down, with him doing his stuff, I suppose, and they finally disappeared from the laser picture somewhere down near the bottom."

"It was a lady squid, then?" said

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the dean, feeling quite cheerful in spite of his throbbing leg.

She nodded positively. "Oh, yes. Your wife says the pictures clearly show that. Imagine, getting that angry because we attracted her friend."

"Well, you know all that stuff about a 'woman scorned'?" said the dean with a sudden grin.

But the nurse took this comment seriously and shook her head in determination. "Maybe we shouldn't have been meddling with such a big sort of life," she said in a firm tone.

She paused to give him a pretty, if rueful, smile. "I shouldn't say that, I suppose, working for the Coast Guard and all, but I think it's *right* she came and got him, even if all that awful stuff had to happen."

"I couldn't agree more," said the dean with a wider grin. "Why, I've always been partial to huge, dominating ladies myself!"

The compartment door, which had been ajar, now opened fully and Emily Bascom stepped in over the sill. "Huge, dominating *women* is really better than huge, dominating *ladies* nowadays, Walter," she said in a soft voice, "but thank you for coming to save me and risking your neck to do it. We all sweated you out for a few hours, me most of all."

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The nurse had quickly and quietly left the room and shut the door behind her. The dean held up his hand to take the one extended by his wife. "Emily," he said in a warm voice, "why in the hell would such a gorgeous, indomitable, completely heroic creature get so agitated about that shrimpy little squirt you caught in your cage, masturbating with an oil-company dildo?"

Emily sat down in the nurse's chair and gave the dean a hand-squeeze and a grin back. "Maybe he called her gorgeous, indomitable, and heroic with all that fancy acoustic stuff. Even a poopy little ten-foot intromissive organ can seem pretty lovely if it's delivered with plenty of sweet talk."

"I'll remember that," said Walter Bascom, lifting his wife's hand up against his pale cheek. "If he can do it, so can I. But ... but, Emily, there's just one thing...."

She caressed his bald, pink head with her other hand and leaned to kiss him. "Sure, dear Walter, what is it?"

"Well," said the dean, biting his lip in thought, "we've done the octopus and we've done the giant squid, so I guess my question is, How big would a *really* big cuttlefish be?"

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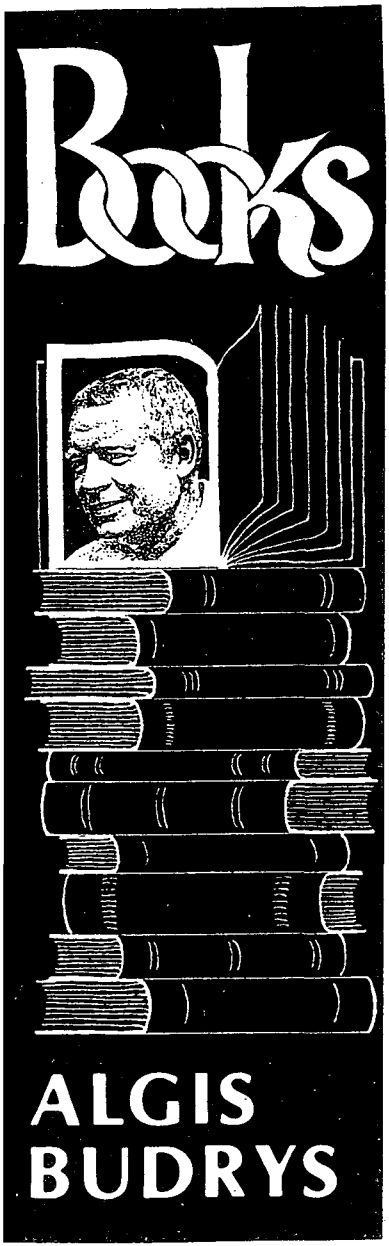

Age of Wonders, David A. Hartwell, Walker, $15.95

Writers of The Future, Algis Budrys, ed., Bridge, $3.50

Wonder's Child, Jack Williamson, Bluejay, $15.95

Who are we, where did we come from, where are we going? Ask the experts:

David Hartwell has been a major participant just about everywhere in this field over the past decade at least. Unless you are an SF professional or an active member of Fandom, you may not be aware of that. Nevertheless, if you're a publisher, Dave Hartwell is one of the guys you get when you send for Wyatt Earp.

In addition to various preparatory and ancillary career activities, Hartwell made a major force of the chaotic and sporadic Berkley SF-publishing program, simultaneously set up the Gregg Press program of prestigious library-edition classic reprints, and then went on to transform the chaotic and sporadic Pocket Books program into Timescape Books. Although that has since been wrenched away from him, the present Baen Books Pocket-distributed program is founded on the bedrock of Hartwell having shown Pocket where the lode was. Meanwhile, Hartwell has gone on to other business arrangements that will surface here and there with telling effect on the field, and he has never for a moment dropped out of the com-

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munity-wide network of interlocking informal but ironclad relationships with other SF movers and shakers, which network is in fact the real place where he and his peers clock in every morning.

Probably, you weren't aware of all that. Book editors don't get much billboard space. They used to get none at all; it was the magazine editors like Hugo Gernsbeck, John W. Campbell, Jr., or Horace Gold or Anthony Boucher, who were the great presences in the SF community. Readerships orbitted willingly around them, and their various actions were so closely followed that almost everything the community did could have been characterized as a set of reactions. These totemic figures were not people as you and I; relatively few in the stefnal world ever actually laid eyes on them or heard them speak. Their names were makers' marks, stamped on each month's fresh output, and that output not so much a magazine in the usual sense but a manifesto on where the SF field was situated at that moment.

It was the book editors who changed that. As the Fifties rolled into the Sixties and then dopplered up into our time, the book editors became the people with the most money to offer. Although no book editor can ever do as much to articulate trends, nurture new writers, and in general stand up front for the community, it's the book editors around whom the established writers orbit. It doesn't matter — in this particular context — that the magazines are in fact alive and at least as well as ever, quite intelligently edited and still in the forefront of discovering and developing new writers and graphic artists. The community's perception of its own dynamics has changed radically, and Dave Hartwell is not only one of the key people in the historical process of detecting, accelerating and directing that trend, he has now become its chronicler as well.

Like everyone else who has tried this role, what he actually does is clearly different from what he apparently thinks he's doing, although exactly what he's done will be debated forever. (For instance, I'm sure he's puzzled by the foregoing implied description of his book, and never had it occur to him that it is, of course, a book-editor's book written by someone who thought he was still being a fan.)

Age of Wonders is not a historical survey, though it sometimes appears to be one and necessarily recites dates and reconstructs chronological processes. It's a sociological document, and its best audience is outside the community. What it most attempts to do is explain us.*

I think purely out of love, Hartwell has done a thoughtful, comprehensive job whose upshot is that it's a hopeless case; there are in effect two

**Good luck.*

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kinds of people — those who do not need SF explained to them, and those who don't want it. But sociologists and forensic scholars of literature are going to find a wealth here, whether they need it or want it or not. And even in real-life situations, should any sort of interstice be detectable in the facade of some null-stef person of your acquaintance, here is your best wedge to insert.

In a usually clear prose style, Hartwell ranges over general topics like "The Source and Power of SF's Appeal" and "The Future of SF." Under those broad headings, he goes into detail; a section called "Worshipping at The Church of Wonder" is even more striking to me than the many other engaging chunks of thought in this book, but some might prefer "When it Comes True, it's no Fun Anymore," or "Crawling Home From the Future." Particularly in light of my own recent notion that much SF might represent some underlying grapple with the same profound feelings that give rise to religion, perhaps I just happened to be heavily taken with Hartwell's independent, and prior, arrival at approximately the same viewpoint. I think the basic thing about this book is that if you've ever thought about why there is SF and why it takes its present forms, or if you've ever even thought about why there are literatures, you and Hartwell are going to have a fruitful dialogue. In my case, I am going to claim, Dave, that SF stands for speculative fiction, not just science fiction, and that until you adopt that view it's understandable — but out-dated —to claim that science fiction can't be adequately defined, and to make the consequent series of logical assumptions that first began leading us up the garden path almost sixty years ago.

Considered as a history, *Age of Wonder* is quirky. That's not, I stress, important to the principal effects of this landmark among SF studies. But for what it's worth, remember that while his conclusions are eminently defensible, his evidence for them sometimes reshuffles chronology or mis-synopsizes certain key works. Also, his understanding of John Campbell — along with everybody's understanding of John Campbell and his role as editor of *Astounding* and *Unknown*, and his nurturing of particular SF writers — should be considered no more than provisional at least until the book of Campbell's letters from the days of "Modern Science Fiction" is published, and very possibly for quite some time after that.

In addition, Hartwell fails the Budrys test, as who doesn't. In the book, I am sometimes A.J. Budrys, sometimes Algis J. Budrys, and, every so often, Algis Budrys — which is the right way — but that's O.K. because sometimes when he speaks of science fiction, he (mis)uses SF and sometimes it's S.F. The part that croggled

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me most was the idea that Jim Blish, Cyril Kornbluth, Damon Knight and I ever attended a "seance" held by Jane Roberts. (Extraordinary notion!) At the time of Jane's visit to the first Milford Conference of professional SF writers, in the mid-Fifties, she was about to launch her very brief and unsuccessful career as a freelance writer, neither yet a professional medium nor within years of writing *Seth Speaks*.

The first Milford was the first time most of America's most committed SF writers met in the same room undistracted by editors, partying, or the usual context of the community as it existed in the Post-Modern Fifties. What we almost all felt, sooner or later over the course of those seven days, was a contact high whose ripples are still detectable within the community. That latter is the part Hartwell gets right at least by implication, and that, of course, is the important part.

The name of L. Ron Hubbard appears with some frequency in Hartwell's book, as it should, and so do mentions of Dianetics and Scientology, as they should. Campbell's notable support of Dianetics, and the publication of Hubbard's magnum opus, *Dianetics, The Modern Science of Mental Health*, were dramatic dislocations in the hitherto expected careers of not only Hubbard and Campbell but also A.E. van Vogt, and created similar events of lesser intensity but identical character at many other points within the community.

You cannot separate the historical from the sociological in such a case, nor can you pretend to much objectivity. The fact is that Campbell essentially was SF — he loomed over all the community's perception of all newsstand speculative fiction, not just science fiction — and when he erupted, an entire coastline changed its profile. Van Vogt, whose splashily idiosyncratic work hardly fits the now-institutionalized view of Campbellian SF, was Campbell's most popular writer once the rectitudinous Heinlein and the flamboyant Hubbard (and his pen-names) had gone away to World War II. It is now generally forgotten or ignored that Heinlein did not found his post-War career on notable activity within the SF community as it then was, moving into the slick magazines and then into his famous series of juvenile novels. Hubbard's return on the other hand was into the community magazines, both as Hubbard and as René Lafayette, author of the highly popular "Ole Doc Methuselah" series, and was greeted with huzzahs as loud as those for Heinlein.*

**Interestingly, author then of* Beyond This Horizon, *with its reincarnation subtheme, and now of* Stranger in A Strange Land, The Number of the Beast, *and* Job, *among others. An absolutely straight-faced engineer from the cradle onward, perhaps yes.*

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Those are the facts, folks, and they have profound meaning for what SF actually was, and what psychic pressures underlay the Golden Age subterrain. And that is despite the fact that once Dianetics had occurred, most of the history written since has been written to present the seamless picture of a hard-wired Golden Age written exclusively by and supported exclusively by engineers reading only stories about engineering. (In that view, the strong mystical bent displayed among even the coarsest cigar-chewing technists is conveniently overlooked, and Campbell's subsequent preoccupation with psionics is seen as an inexplicable deviation from a life of hitherto unswerving straight devotion to what we all agree is reasonability.)

For whatever reason, Hubbard has resumed his SF career, going about it in the same way he always proceeded — with the maximum amount of involvement. Part of that is the sponship of a contest for "new and amateur writers," and when I first heard about it, my eyes rolled. There have been writers' contests in SF before, and they have been bombs, every one, not to say that at least one wasn't an outright fraud. For my sins as a sometime communications consultant, I even had the idea discussed with me by Hubbard's representatives, and I strongly recommended against it. Which is how I got to be one of the contest judges, and, eventually, the editor of the first anthology taken from it, the contest now having settled down into being a quarterly event that will continue indefinitely.

Entry is free, and the contest is open to SF stories of under 17,001 words. To still be an eligible entrant, you can have sold one novelette or three short stories before entering. No novels. (You can have published as much nonfiction and as many poems as you could.) The rules explicitly require that the entered work be previously unpublished in professional media, a loophole having been detected. Every three months, all the stories that have come in are read by three tiers of judges. (I was in the middle tier during 1984. I read everything that wasn't considered hopeless, and passed the best on to the judges such as Gregory Benford, C.L. Moore, Robert Silverberg, Theodore Sturgeon, Jack Williamson, and Roger Zelazny, who picked the top three choices per quarter.) The cash prizes are $1000, $750 and $500, respectively, and there are certificates and trophies as well.

The gimmick — You were waiting for the gimmick, were you? — is that entering the contest or winning a prize in no way conveys or even options any of the rights in the story; you can take your prize and your script and walk away whistling. On the other hand, if you would like to make some more money, and see your work published in a rather nota-

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able volume, then Bridge Publications will make you an offer at pretty good rates for limited rights.*

Inasmuch as the contest was extensively publicized, a great many stories were entered — hundreds of them — and I hope this continues, because the end result of the contest's winnowing-out process as far as I'm concerned is a pretty impressive anthology. That, of course, is the bottomline — are these people any good, and is this book any good to read?

Well, these fifteen people are pretty good. Some of you may have heard of — Nina Kiriki Hoffman, who took a prize in the first quarter while also winning a place in a *Writers' Digest* contest; Karen Joy Fowler, who sold stories to *IASFM* and *F&SF* before entering, and Leonard Carpenter, who coincidentally was offered a contract to do a Conan novel just about the same day he was notified he was a winner. Dean Wesley Smith, a runner-up whose story is in the book, had previously appeared (with Nina Hoffman) in Damon Knight's 1984 *Clarion Awards* anthology. So if credentials impress you, that's a partial list — some of these writers are complete novices, some, within the rules of eligibility, have track records. What it always comes down to, though, is Is this book any good to read?

I'm convinced it is. Some of these stories are real thumpers, others are gentle, all of them seem quite memorable to me ... but of course I've read them repeatedly, so there's no objectivity in that last appraisal. They range across the entire spectrum of SF — many are kinds of fantasy — and many of them are markedly individual, signalling, I think, the appearance of names that could be with us for entire careers, bringing fresh orientations and novel approaches into the field, as the best new writers have always done.

It was a pleasurable jolt, by the way, to discover that three of the people in this book are former Clarion students I'd worked with, and that several others had attended workshops modelled on Clarion. We must be doing something right, I said to myself. More likely, we are doing less wrong than some, but the pleasure remains, and the renewal of the discovery that they just keep coming, the determined people who are going to tell the tales forever.

Some of the judges — Silverberg, Sturgeon, Williamson, Zelazny, me — contribute essays bearing on what

For more information, write to Writers' Award Contest, 2210 Wilshire Blvd. #343, Santa Monica, CA 90403. Or just put an eligible story in the mail, type-written, double-spaced, on one side of the paper, with a stamped return envelope. Furnish your name, address, phone numbers if possible, and the story title, on a separate sheet. Thoroughly delete your name from the manuscript itself, whose numbered pages should only be headed by the title — the judges don't need to know who you are until after you win.

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writing is like, giving tips to beginners, and also a sense of comradeship, I think. The individual story introductions — I wrote those — are aimed at making it easier to understand what a writer is like and to demonstrate the various routes by which one comes to publication. And there is an L. Ron Hubbard introduction. Among the many things few of us recalled about him was a career as a writer for writers' magazines before World War II, when he was a legend of productivity in half a dozen markets, dispensing anecdotes and hard-won wisdom with a characteristic swagger and an underlying no-nonsensical grasp of the bottom line.

Why is he doing this now? Why have writers — and particularly SF writers — traditionally encouraged their successors, often expensively? I can't begin to divine exactly why this book exists as a property; as an expression, I can tell you it is part and parcel of the SF thing, whatever that is. It also happens that this is the first book I've ever signed my own name to as editor, and I think it's a hell of a book.

Another one hell of a book is Jack Williamson's autobiography. Of *Wonder's Child*, he says: "Within the limits of memory, manners, and a habit of reticence, I've tried to make the book as honest as I can." If you understand that Williamson is a unique figure amoung archetypical SF writers, those words in fact suffice to tell you all you need to know before obtaining your copy. But, humor me, I have pages to fill, and so shall.

John Stewart Williamson, PhD, was born out West in 1908, living in the world that had only recently cast up Billy the Kid. Child of homesteaders and marginal farmers, grandchild of pioneers, great-grandchild of colonists, Jack Williamson knows he comes from frontier people. Some interesting thinking in this book has to do with the probability that the rise of technological voracity (and hence of scientifiction) is an effect of pioneer drives redirected by the fact that we had just then run out of room for geographical expansionism. In other words, we have here a direct proposed explanation for why stef was an American phenomenon, for how a literally starving young man cutting irrigation ditches and chousing scrub cattle could be a steady contributor of cover stories to *Amazing, Astounding,* and *Wonder Stories,* and how in only slightly later years poverty might interrupt his psychoanalysis.

Apart from tracing the life of the second person to ever win a Grand Master award from the Science Fiction Writers of America, and a career that, except for World War II service, is continuous from 1928 to the present day, *Wonder's Child* is full of purposeful rumination by an impressive data-cruncher. (His doctoral thesis, published as *H.G. Wells, Critic of*

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Progress, is a cornerstone of scholarship.) Though he declares he early came to consider philosophy as just another artform — Delightful, sapient remark! — that art in fact is going on continuously in this book. He doesn't recount the past, he accounts for it; he utters no opinion that doesn't fit into an encompassing intellectual structure. So this book is an absolute must-read for any nameworthy scholar; in it Williamson publicly emerges as one of our most considerable theorists.

It's also fascinating Fan reading; here are scads of gossip and reminiscence, flavored by blunt opinions. The great names of friends, adversaries and acquaintances march past: Gernsback, Harry Bates, Campbell, Margulies, Weisinger, Merwin, Boucher, Gold; Miles J. Breuer, David H. Keller, Jerry Siegel, Edmond Hamilton, Heinlein, Hubbard, Van Vogt, Kuttner, Moore, Brackett, Bradbury; the Futurians, Pohl, Kornbluth, Wollheim; Moskowitz, Taurasi, New Fandom, the first and subsequent World conventions, Forrest J Ackerman in costume....*

Remarkable. Utterly remarkable. A fortunately long core-sample with every millimeter an opening upon a vast field. For example, in here is more backing for my growing conviction that the famous World War II Cleve Cartmill story, "Deadline," was not an *accidental* stumble by editor Campbell into the Manhattan Project. (Williamson, interestingly, remembers it here as "Deadfall"; Freud says there no accidents.)

There is, to sum up, more good, clean, common sense and honest data in this book than there is in any other single volume of its general sort; more depth, more amenability to reason, more good humor, less *pointless* reticence, more integrity; one hell of a man.

**There are pictures; Bluejay in general has done an excellent job of design and manufacture, to say nothing of an evident desire to serve something beyond the immediate bottom line.*

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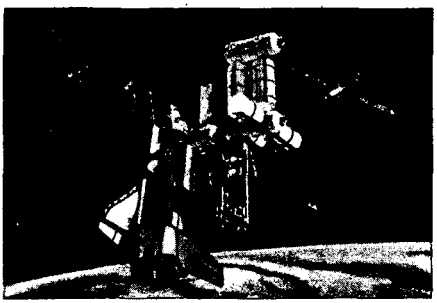

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There's no denying that lists are an attention getting device; but they rarely seem to reward that attention. We guarantee that Mr. Tritten's lists are different and will leave you feeling well filled and satisfied.

The SF Book of Lists

BY
LARRY TRITTEN

Three Hard-Science Extrapolations That Strain the Credulity of Even a Science Fiction Fan

1. The barbecue sauce that stains the universe in C. J. Heering's *Bob's Big Bang Burgers*
2. The polluted river in which fish begin to look like Jerry Lewis in Anson Heinster's *The River of No Return, No Deposit*
3. The explanation of why light travels so fast in Christopher Frisk's *Einstein Zwei Drei Vier*: "Because it doesn't have to stop for gas or to eat or sleep or argue with the wife and kids."

Five Memorable Opening Sentences

1. Coming down fast out of the time flux, Biolac hit the Restoration hard, bounced jerkily through the Renaissance, and came to a skidding halt in the Dark Ages, where his first thought was that with no potatoes or tomatoes in Europe yet, he'd have a tough time getting a decent salad.

— *Timehogger* by Ergo Von Staten

2. Preston was able to detect the aliens by their behavior, which lacked social verisimilitude: the first had eaten his utensils at dinner, thinking they were hor d'oeuvres; the second had unthinkingly tied an undone shoelace by telekinesis; and the third had asked Preston's grandmother if she could knit a major appliance using steel wool.

— *They Walk Among Us with a Funny Gait* by Marmot Villiers

3. Through the portal the stars looked like a handful of confectioners' sugar thrown upon a great black velvet sheet — it was a sight that never failed to choke Jork up, and this time, since it was his last voy-

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age, it made him want to vomit.

— *The Dark at the Top of the Stars* by O. O. Smitt

4. "Aliens aren't like you and me, Alan," his mother had told him when he was a boy. "Nope, they'll shortchange you every time, so always count your change, and don't let them distract you with no pleasant ululations, neither!"

— *Asteroid of the Lost Keys* by Bunsen Nelson

5. Though she was of flesh and blood and he of paragenetic metal, they were to find, through love's ultrasomatic imperatives, that tears are universal and pain is not the exclusive prerogative of those who are pink.

— *"Deedle Deedle," Said the Metalmorph* by H. Cronin Trout

Four Definitions of Science Fiction

1. Leland Veering: "Fiction about what might be, what maybe is, and what might have been, and which pays about as well as collecting empties."
2. Arthur MechDonald: "That branch of modern literature written by people who either know the parts of an atom but not the parts of speech or who know who their muse is but not where Betelgeuse is."
3. Varla Crayola: "A science fiction story is one set either in the future, present, or past that has as its protagonist a person who never majored in the liberal arts."
4. Algae Burdis: "Palpably astonishing stuff that slackens the mind's jaw as it puts salt on the tails of our birds of concept."

Two Science Fiction Books with Embarrassing Publisher's Errors

1. A. A. Von Schmoltz, *The Pawn Shops of Ishtar* (Gizmo Books, 1954). The first edition omitted all the consonants in the first twelve chapters and substituted ampersands for periods in the entire text.
2. Ambergris Lake, *Robots Don't Jitter* (Jackdaw Books, 1979). The entire text is in international deaf-mute hand signal pictographs, except for the final chapter, which was replaced by a note to the printer from his credit union.

Three Things that Are Traditionally More Culturally Acceptable than Reading Science Fiction

1. Attending the funeral of a parent on stilts
2. Giving your boss's daughter a spittoon as a wedding gift
3. Blindfolding bloodhounds used to chase a fugitive rapist

One Idea Offered Gratis to Any Militant Feminist Science Fiction/Fantasy Writer Who Wants to Make Use of It

1. An archaeologist and a linguist uncover evidence that male chauvinist pigs in ancient Rome spoke male chauvinist pig Latin.

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Three Parallel Worlds We'd Love to See

1. A world in which an efficient salt shaker is designed before man lands on the moon
2. A world in which writers are paid not by the word but by the syllable
3. A world in which one's rent never exceeds one's IQ

Four Unproduced Movies Whose Potential Producers Fell Asleep During the Writer's Pitch

1. *The Velcro Enzyme*
2. *It Came From Outré Space*
3. *Orca vs. Starkist*
4. *Godzilla Gets a Lawyer*

Isaac's Asimov's Seven Books I Haven't Written Yet

1. ***Asimov's Guide to Woods and Cheeses***
2. ***Paleontology on Five Dollars a Day***
3. ***Asimov's Guide to the Stars on Hollywood Boulevard***
4. ***An Easy Introduction to Topological Breakdancing Techniques***
5. ***Asimov's Illustrated Guide to the Reproductive System, Whose Organs Can, However, Be Used Recreationally***
6. ***Runic Meaning in Skid Marks***
7. ***The History of Hair Balls***

Four Stories that Famous Writers Can't Find a Market for

1. Harlan Ellison's *And All the Stars Be Clots and Gleet,* about a sentient universe that fails the Wassermann test
2. Ray Bradbury's *Ah! Ah! Ah! Ahhhh!,* a story about a small boy who fatigues his sense of smell on a carnival midway before stowing away on a rocket and becoming the first boy on Mars
3. Norman Spinrad's *Bag Lady Baroness,* about a celestial trashbagger, once a member of royalty, who travels through the universe collecting asteroids and looking for the lost moon that eons ago enticed her into giving her virginity to a cruel lover who bit her during her sexual climax, causing a nova that destroyed several worlds
4. Michael Shea's *The Mucus Sculptors of Proboscis IV,* whose title is self-explanatory

Four Apparently Abandoned Ideas Found Written on Napkins Left on the Tables with the Most Empty Bottles and Glasses at the Last Hugo Awards Dinner

1. Extraterrestrials visiting Earth consider Spackle, wallpaper, and magnetic Scotties our most impressive technological achievements.
2. In a future in which the print culture is dead, a writer wins the Nobel Prize in literature for scripting a music video in which van Gogh is given a Polaroid camera and forsakes painting for photography.
3. Alien sensualists with two-dimensional physiques and a carbon-based body chemistry come to Earth to enjoy *ménages à* trois with triplicate

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carbon paper forms in stationery shops, which they consider houses of joy.

4. A parallel world in which Richard Nixon — instead of a plaque bearing his name — is put on the moon.

Seven Favorite Pulp Titles

1. *Littly Bitty Mistresses of the Micromaniacs*
2. *I Never Met a Metaman I Didn't Like*
3. *Slaves of the House of Fantastic Discounts*
4. *Mutant See, Mutant Chew*
5. *Iron Pyrites Pirates in the Fool's Golden Galaxy*
6. *The Dreamcleaners of the Sleeping Queen of the Insomniac Cosmos*
7. *Hot Time on the Star of David in Goliath's Galaxy*

Four Obscure Science Fiction Series

1. The *Snackworld* series by Llewellyn Alloy. Alloy's heroes are micronauts exploring a series of appetizers left on the table in the wake of a Polish wedding.
2. The *Planet of the Thespians* series by Ivan Fistikoff. On a planet identical to the Universal-International film studios logo, the entire population comprises the dramatis personae of a drama scripted by a hack deity.
3. The *Slickworld* series by Esmé Smollett, in which a band of explorers led by the heroine, Beige, are unable to stand upright on the surface of a world as slippery as a newly waxed floor, and undertake an odyssey on all fours.
4. The *Starshop Pequod* series by Jarman Glasswater. Captain Ahab, a cyborg with a computerized alloy leg, leads his crew in pursuit of a great white space whale through a series of black holes.

Five Science Fiction Writers Under 5'6"

1. Harlan Ellison
2. Harlan Ellison
3. Harlan Ellison
4. Harlan Ellison
5. Harlan Ellison

Three Memorable Rejection Letters Submitted by Writers Who Shall Remain Nameless

1. Thanks very much for letting me see this; however, we do not accept stories submitted by writers whose literacy is exceeded by a bowl of alphabet soup.
2. Thank you for sending us your manuscript, which we are returning with our managing editor's heel mark. Best of luck in placing it elsewhere, perhaps in the back of your drawer.
3. Thanks for letting us look at your story, although a glance was plenty. Have you ever considered English as a second language?

The Second-Shortest Science Fiction Story

The last man in the world sat alone

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in a room. There was a knock on the door. It was his landlady.

Five Ways of Ending the World that No One Has Ever Used in a Story

1. The Milky Way turns sour, and God throws in out.
2. The space-time continuum has an intermission.
3. Too much heavy-metal music causes Earth to spin out of its orbit and fall into the sun.
4. All of the heaviest elements sink to the bottom of matter and upset the balance of reality.
5. Drug addicts from another galaxy snort and smoke up all of the Earth's atmosphere and geographical make-up.

Three Science Fiction Writers Who Have Undertaken Unusual Collaborations

1. Alfred Tungstein wrote his novel *Ether/Nor* with the assistance of his houseplants, which he claims helped him with parts of the second draft.
2. Fritz Rimmler wrote his story *Proton, Neutron, Teuton* with the help of the German Tourist Bureau, which also supplied him with wurst.
3. Scott Clark Fitzcohen claims that the ideas for the entire line of fantasy-oriented greeting cards he published were given to him by a voice behind the cordials in his liquor cabinet on nights when he took more than four drinks.

Two Novels About Time Travel that Were Written by Writers While Serving Time

1. *Around the Bends of When and Up the Creeks of Chronology Without a Pendulum* by Hamilton Melon
2. *Tempis Fugitive* by Saxton Standwick

Ten Don Rickles-Style Responses to the Titles of Famous Science Fiction Novels and Stories

1. *I Have No Mouth and I Must Scream* ("Shut up anyway!")
2. *To Your Scattered Bodies Go* ("And change your underwear.")
3. *The Man Who Folded Himself* ("But not above the knees and below the waist.")
4. *Stranger in a Strange Land* ("Be sure not to drink the water.")
5. *Childhood's End* ("Thank God, puberty at last!")
6. *I, Robot* ("Why you talk like Tarzan?")
7. *A Meeting With Medusa* ("And take along a couple of mice for her hair!")
8. *The Empire Strikes Back* ("That's two strikes, Lucas. One more and you're out!"
9. The Bicentennial Man ("You mean you only do it twice a century!?")
10. *The Saliva Tree* ("I, uh, think I'll pass on its fruit.")

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Phyllis Eisenstein's most recent story here was "The Amethyst Phial," (February 1984). This new tale is the not entirely serious account of first contact between man and . . .

The Snail Out of Space

BY
PHYLLIS EISENSTEIN

Have landed at forest perimeter. Tribe of local nautiloids nearby. Disguise seems adequate; more later.

My apologies for the terseness of that initial message, but a herd of striped quadrupeds was galloping by at the time, and I was forced to take cover. I had been about to make contact with a native, but unfortunately, it was crushed to a pulp beneath hammerlike datuls nearly as large as its own body. I was, however, able to observe it long enough to make certain adjustments in my camouflage pattern, and now I have no doubt that I can pass as a member of its species. I will approach the next nearest individual.

Mimicking the natives, I am proceding in fifth gear, at which rate the distance to said individual is considerable, so I will in the meantime take detailed inventory of my surroundings. The vegetation is lush, exhibiting every conceivable shade of green; flying and crawling creatures of small size are abundant and appear to be ignoring me. I have already gathered a few specimens in my traverse, filling Drawers 1 through 869. I see no predators in the immediate area, but my laser cannon are ready for any contingency. The heat, especially in direct sunlight, is intense, but my air conditioner is bearing up well and I am comfortable.

The native I have approached is browsing on vegetation at the side of one of the paved roads that have been constructed by the dominant species of the planet. Its lack of concern for the proximity of fast-moving vehicles would appear to confirm our tentative

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hypothesis of an interspecies nonaggression pact. This individual also seems unconcerned by my presence and is, in fact, ignoring me completely. I will attempt to win its attention by scraping a few geometrical shapes in the soil between us.

The native has noticed me at last and begun to weave its head in an obvious effort to communicate; by mimicking its motions I hope to indicate my own intelligence. This particular individual has considerable primitive charm. Its shell, though made of natural secretions and considerably heavier than my dropsuit, is handsomely whorled and banded with brilliant colors. Its head is small and delicate, its eyestalks daintily tapered, its skin smooth and lustrous, and its slime has a most attractive odor. Apparently convinced of my authenticity, it is now making what I can only describe as rather intimate advances. Though this may well be the standard form of greeting among these creatures, I confess to finding it somewhat disconcerting, and I can only hope I will not be violating any local custom if I do not reciprocate.

While the native and I were engaged in that first tentative essay at mutual understanding, a large vehicle stopped nearby on the pavement, and a member of the dominant species emerged and moved us from the ground to the vehicle, where we now repose. So far, this individual has made no obvious attempt to communicate with us, either by gesture or vocalization. Its primary concern seems to be with eating, for its mouth is moving continuously as it guides the vehicle, apparently masticating a cud. I presume it is not indicating a desire to eat us at some future time, though I will not, of course, completely rule out that possibility. My companion does not seem concerned about our current state, however; it is resting serenely beside me, and I intend to behave similarly as long as such behavior seems appropriate.

Our captor — for such I must call it now — has removed us from the vehicle, taken us inside a large roofed enclosure, and placed us within a steel mesh cage some eight or nine times our combined body volumes. We have been given water and vegetative food, and the cage is well sheltered from sunlight. What purpose we will serve here remains to be seen. The lock of the cage is of simple construction, and I have no doubt that I can escape this confinement whenever I wish.

My companion is eating enthusiastically, and, for the sake of my disguise, I shall pretend to do the same. With a few minor adjustments, the trash compactor will press this fodder into a fair imitation of nautiloid excrement, which I will extrude from

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my suit as discreetly as possible. And while the compactor is running, I will have an opportunity to consume a few synthetic concentrates to keep me going. More later.

Our captor removed us from our cage a short time ago and placed us in separate compartments of its outer garment. For some time, therefore, I have been experiencing its peculiar bipedal form of locomotion; the constant pitch and roll was somewhat distressing initially, but I have taken two motion-sickness tablets and feel much better now. Visually I can report nothing, being entirely closed in, but my other sensors indicate that we are entering an area densely populated by members of the dominant species. The noise level has risen substantially, and the variegated odors of the vegetated spaces have given way to the body scent of the dominant species, which I must report is not nearly so pleasing as that of my molluscan companion.

We have been give a modicum of freedom. Our captor removed us from its garment while inside a dimly lit enclosure and placed us on a surface of exceptional smoothness. My companion immediately began to test our environment and soon disappeared over a nearby precipice, but our captor returned it promptly to my side. I was more cautious; the smooth surface was narrow but of considerable length, and I proceeded to investigate the latter dimension. My captor did not stop me. Many members of the dominant species stood at one side of the surface, resting their oddly folded upper appendages on it, observing me intently. Occasionally one of them would vocalize briefly, but these sounds did not appear to be any true effort at communication, and as my companion was clearly ignoring them, I did the same. Aligned on the surface in front of these individuals, in obvious one-to-one correspondence with them, was an irregular row of transparent cylinders, most of them slightly taller than myself. The cylinders contained various colored fluids topped by masses of small bubbles, and occasionally an individual would raise a cylinder to its mouth and drink.

I was observing this action for the fifth time when the individual concerned lowered its cylinder to the smooth surface and proceeded to tilt it, spilling a small pool of fluid in front of me. Surmising that the creature was offering me refreshment, I quickly analyzed the fluid and found it to contain a complex of organic substances, all in very small quantities, combined with a large volume of water. I saw nothing specifically harmful among the organics, and although there were a few that I did not recognize, their molecular structures indicated at least theoretical potability, so after securing a sample

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of the fluid in Drawer 942, I tasted it tentatively. It was slightly bitter, but not unpleasant. I tasted again, and soon I had consumed it all. My companion was then placed beside me, more fluid decanted, and we both drank. My chronometer informs me that a considerable period of time has elapsed since that point, though on a subjective level it hardly seems so, and I am still here on the smooth surface, as is my companion. Most of the members of the dominant species, however, are gone. I am able to see my captor, though, if I move to the edge of the surface; it is horizontal some distance below me and appears to be in a state of estivation.

Our captor has retrieved us and is moving once more; this time I have been forced to take three motion-sickness tablets, so rocky is the ride. My directional finder tells me that we are returning to the enclosure containing the cage. I am neither hungry nor thirsty, but I am not feeling very well and must admit that I look forward to the tranquillity of the cage. More later.

Immediately upon our return, my companion, exhibiting that physical hardiness that so frequently characterizes members of pretechnological cultures, began to eat. I, however, found fatigue overwhelming me and therefore allotted myself a standard sleep period. Scarcely half of this time had elapsed, though, when I was awakened by my companion, which had positioned itself adjacent to me and was gently nuzzling my mantle and my single exposed tentacle with its delicate head. I must confess that in my semiconscious state I did not find these strokings — and, indeed, nibblings — unpleasant; and at first I did nothing to curtail them, reasoning that, whatever else they may have been, they were obvious indications of regard on my companion's part, and I surely would have been discourteous had I immediately withdrawn from them. However, when these gestures passed a certain level of intimacy, I felt that the time had come to slip away and feign consumption of vegetation. Apparently I chose the proper course, for my companion quickly resumed its own meal, and at this moment we are resting side by side, each dealing with plant materials in its own fashion.

I am, naturally, relieved that I seem to have given no offense to my companion, yet I would feel easier still if I understood the true significance of its overtures. Were they perhaps part of a ritual intended to establish some sort of fictitious kinship between two strangers? Am I now, possibly, a member of its tribe? I must redouble my efforts at communication. More later.

We have visited the dimly lit place

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once more, and this time I was fortunate enough to observe my companion engaged in a new variety of behavior. It and I had been moving about the smooth surface at random for some time, and neither of us had yet been offered any refreshment, when it chose to approach one of the transparent cylinders. I saw nothing unusual about this particular cylinder except, perhaps, that it was filled to a marginally higher level than any of the others. Upon reaching the cylinder, my companion commenced to climb up its side, clinging to the slick vertical exterior with its muscular foot and thick slime. At the rim, it bent its long neck gracefully and began to lap at the fluid. This action, though initially appearing discourteous to me, was obviously socially acceptable to the members of the dominant species present, for although many of them vocalized loudly when it occurred, and even gestured toward my companion with their upper appendages, none of them made any attempt to halt it.

Naturally, I immediately copied this behavior in order to maintain my disguise. I had some difficulty in making the climb; the treads on my all-terrain footpad were not equal to the task, nor did my mantle lubricant create an adequate seal between them and the cylinder. I was forced to break out the suction clamps, and halfway up I thought I might need the pitons, but fortunately that did not turn out to be the case. I reached the rim successfully and managed to hang there while lowering my siphon to the fluid. It was a somewhat precarious position for consuming anything, but I believe I acquitted myself well enough.

How I descended from the cylinder's rim is not clear to me. Possibly I was removed by my captor. At any rate, I am once more in the cage, as is my companion, and we are both eating. I have decided to try the local food, though analysis indicates it is appallingly low in protein. My companion has guided me to the more succulent portions of the vegetation, and in return I have given it some morsels of my most flavorful concentrate. Its gratitude for this gift is obvious to me; even though we have been together only a short time and have not yet been able to communicate on any explicit level, I feel that we have already achieved a considerable empathic rapport. I am certain that this bodes well for our future relations with the mollusks of this planet. More later.

As the floor of the cage does not lend itself to drawing, and as every time I trim a few simple geometrical shapes from the vegetation and arrange them in some logical configuration my companion eats them, I have decided to employ my external video monitor for subsequent attempts at communications. There is an element

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of risk in such a choice, I know, but I am confident of my ability to detect our captor's approach in ample time to shield the display. Rather than rely on my own modest video skills for this endeavor, I have initiated a sequence of standard larval educational programs, and already their color and liveliness seem to have caught my companion's attention. Yes, it is moving closer, stretching its supple neck out, waving its delicate eyestalks in obvious comprehension. Oh, why did I not think of this before? I have vastly underestimated this charming creature's sophistication. It draws nearer still, its head bobbing gently, its muscular foot rippling rhythmically. Are these perhaps its forms of communication, these complex movements of flesh? Has it been signaling to me time and time again, and have I been too concerned with the trivialities of geometry to detect them? It touches me now, lightly, with its foot. Is this a joyous greeting to a kindred soul? I feel it must be. It *must* be. I mimick the gesture, and its head bends to my exposed tentacle, its tender mouth strokes my vestigial suckers, its radula grazes their sensitive rims, like a delicate pattern of pinpricks, and as I return these palpations on the side of its neck, its head moved upward, upward, as its sinuous neck twines, oh, as it twines upward, upward, oh —

My apologies for breaking off that last report so abruptly, but my companion's expectations had become so obvious, and its actions so insistent, that my undivided attention became imperative. Although I had never intended to do so, I found myself participating in sexual congress with the creature. I am aware that this is not a step recommended by the manual, yet under the circumstances I felt it would be injudicious to extricate myself from the experience, and I believe that any of my colleagues, confronted by the same set of parameters, would have done as I did. At minimum, it was an unparalleled opportunity to ingratiate myself with my companion, to win its complete confidence, to offer it a genuine motive for learning to communicate with me, and these alone, aside from the not-unpleasant physical aspects of the situation, were surely ample justification for pursuing it.

We are resting now. Or, rather, I am resting. Our activities seem to have made my companion hungry, and it has moved across the cage to eat. What a ravishing creature it is, the bold colors of its shell framed against the tender green of the vegetation, its delicate head dipping with such grace to the succulence of that nourishment, its mouth moving softly, its eyestalks drooping in a most charming fashion. When I think that this glorious being has actually allowed me to possess it, my reproductive probe throbs anew. More later.

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My companion's willing renewal of our activities has convinced me beyond any doubt that our relationship is now firmly established. I have, therefore, been exerting my most strenuous efforts to communicate with it, displaying recording after recording, from the lowermost larval grade onward. Thus far, however, it has responded to these materials only by occasionally nibbling at the screen; I have, of course, noted those sequences that elicited this reaction, but I have not as yet perceived any common denominator among them. I shall persevere, however; I am convinced that somewhere in all this material lies the approach that will provide that necessary bridge between us. More later.

I was forced to suspend my communication attempts by the arrival of our captor, who conveyed us once more to the dimly lit place. I have not so far fathomed precisely what it is that causes our captor to go there with such frequency, but my working hypothesis is that it is a center for political activity, possibly even a seat of government. Had we any desire at all to make contact with the dominant species of this planet, this would, I believe, be precisely the sort of place for it.

Having made this observation, I now must report, with considerable chagrin, that I have almost been the instrument of such an event. After some short time in the dimly lit place, during which my companion and I refreshed ourselves side by side at a pool poured for our benefit, I suddenly found myself writing messages in lubricant on the smooth surface. And these messages were not merely symbolic abstractions but actual statements in our language, interpretable by any intelligent observer as indisputable evidence of an extraplanetary presence. Our mission might have been wholly compromised had it not been for the perceptivity of my companion. Sensing that I was committing an act unwise in the extreme, it followed me as I wrote, its broad foot erasing each character mere instants after I completed it.

I have no excuse for my actions. I do not know what provoked them. Indeed, this entire visit to the dimly lit place is less than clear in my memory. I can only plead the mental — and the physical — strain attendant on an expedition like this and hope that my superiors will give full consideration to my candidness when determining my punishment.

I hope that they will remember, too, the invaluable assistance of my companion, and bestow upon it an appropriate reward when this planet becomes a full member of the Molluskian Alliance.

And as we are in the cage once more, and away from the prying eyes of the dominant species, I shall re-

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sume my attempts at communication. My companion's obvious recognition of language has encouraged me enormously. A breakthrough is surely on the horizon. More later.

I have lost count of the number of recordings I have displayed for my companion. I have even devised a few of my own, utilizing the vast symbolic potential of our language combined with some modest computer-generated illustrations derived from our environment; my hope was that the appropriateness of this material would succeed where the professionally produced educational programs, which may well seem excessively foreign to my companion, have failed. Yet still my companion's responses seem random at best. I feel we may be at an impasse. Yet I cannot give up. I cannot. More later.

We sit on opposite sides of the cage, my companion and I. What a ravishing creature it is, settled amid the vegetation, its delicate mouth chewing, chewing, constantly chewing. Of course, it must eat frequently when the only available diet is so low in protein, but still, I see now that food is its primary interest in life. Food and, of course, sex. Reluctantly, I have come to the conclusion that it is an individual of less than ordinary intellect. It simply is not capable of grasping my efforts at communication.

Still, limited as my companion is, I find its serene and beautiful presence more agreeable than I can properly convey. We have our rapport, though it is not an intellectual one, and I do not scorn that.

We have visited the dimly lit place yet again, and this time I realized that, although my initial hypothesis of its function may indeed be true, I had not considered another — though much more bizzare — explanation for the frequent gathering there of many individuals of the dominant species. Unlikely as it seems, the place may possibly be some sort of communal eating area. Instead of eating in small, private groups of family or friends, these creatures apparently prefer to ingest their substance entirely in public. What else would explain the almost constant consumption there of the variously colored fluids? These are not mere refreshments, as we might serve at one of our own politcial gatherings. On the contrary, they are obviously the dietary staples of the species, and, like the vegetation that forms the primary food of the nautiloids, they are appallingly low in protein, requiring individuals to consume extremely large quantities in order to derive adequate nourishment. I have taken further samples, filling Drawers 1030 through 1254, in the hope that our scientists will be able to develop a high-protein version of one or more of them. Certainly their pleasing flavors, ranging

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from slightly bitter to somewhat sweet, will find as ready an acceptance among our people as among the natives. I am, of course, supplementing my own consumption with synthetics.

Need I say where we have been? When we are not in the cage, we are in the dimly lit place. If our captor ever goes anywhere else, he does not take us along. Yet I must confess to being content in these circumstances, even though such limited movement is contrary to the spirit of our expedition. I know I should escape from this captivity and continue my explorations; I should begin using the night to move swiftly from place to place while still posing as a nautiloid by day; and yet I find I cannot go, for that would mean leaving my companion. My dear companion.

I have never felt this way about another mollusk. We are different creatures, it and I, different in race and in intellect, but we are kindred spirits. I have come to care for it, not just for the beautiful pattern of its shell, for the delicacy of its eyestalks, for the rippling muscles on its foot, but for the tender, gentle warmth that I perceive every time it nuzzles my tentacles. I have, in fact, decided — though it is against all regulations and will undoubtedly earn me permanent censure from my superiors, and possibly even dismissal from the Service — to bring my companion back to the rendezvous, and back to our home planet. I know that my family and friends may have some difficulty in adjusting to my relationship with a creature so different from themselves, but I believe that in time they will come to accept it and to understand that the closeness, the understanding, and the silent mutuality that we two share will fully compensate me for any damage to my career.

I will, of course, continue to make my reports and to collect specimens, as far as either activity seems necessary. And I will hope that my fellow explorers can, in their diligence, fill the gap that I must leave.

The dimly lit place again. Took a few more fluid samples. Perhaps I will become an entrepreneur after I am cashiered from the Service, and make my fortune introducing these excellent beverages to mollusks throughout the galaxy. Then no one will scorn the former explorer spoused to the foreigner. Yes, I shall make my fortune.

The dimly lit place again. More samples. The variety of flavors is astonishing. I venture to predict that the discovery of these fluids may well be the single most important result of this entire expedition. I venture to predict that this may make my companion and me famous. We will be famous, rich, and happy. What can the Service offer to compare with

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that? Nothing. Nothing at all.

Something terrible has happened. I cannot speak of it now. Something terrible.

It was so sudden, so unexpected. So dreadful. My dear companion — I cannot go on. More later.

I am keeping vigil by the body. Have kept vigil for two periods of darkness. Or perhaps three. Is that enough, I wonder, in their tradition?

We were in the dimly lit place. As usual. Sipping from the same pool of fluid. One moment, its eyestalks were waving cheerfully, its mouth was lapping up the cool fluid, and its muscular foot was rippling in a steady rhythm; and the next it was lying limp beside me. I nudged it gently, but it never moved, and then I knew. I knew.

A great deal of time passed. I would tell you how long except that I seem to have misplaced the chronometer. But it was a great deal. At last our captor picked us both up and took us back to the cage. We have not left it since. I suppose our captor is arranging the pyre; I wonder — will they allow me to leap upon it?

I fell asleep at last, exhausted, and when I woke, my dear companion's body was gone. I suppose my captor has performed whatever funerary rites their tradition demands. But I wish it had awakened me to participate. Or even just to observe. Just that. If I must go on living, I would at least have that final memory to keep for always.

So now I am alone. The cage seems very large, for one. There is water and vegetative food in plenty. If my companion were alive, it would guide me to the succulent vegetation, and we would share those portions, side by side, in silent communion. If.

I find that, just now, I am not very happy.

We have visited the dimly lit place again, my captor and I. We do that quite often. The dimly lit place. Site of so many beautiful memories. I cannot help thinking of my dear companion every time we go there; sometimes I even forget myself for a moment and turn, expecting to see it dipping into a pool of pale fluid or perhaps climbing up the side of a cylinder. For just a moment, I look for those tender eyestalks to wave at me, for that delicate head to weave its sweet, familiar invitation. And then, suddenly, I remember, and I wish that I were back in the cage, that I had never come to a place where so many memories haunt me. But of course I have no say in the matter. My captor takes me.

The dimly lit place.

On the smooth surface, alone, I sip the fluids that we once consumed

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together. I do not know how I would live without those fluids. Somehow, they seem to take the sharp edge off my grief. But not always. Not always.

Work would divert my mind, I know. I am in the cage now; my captor is nowhere in sight; I should use this opportunity to escape. And I think I would escape, except that the lock seems a trifle more sophisticated than I formerly supposed, and I have not been able to disengage it by manipulation. I would simply blast it with my laser cannon except that I have apparently forgotten some crucial aspect of the weapon's operation. Or perhaps it only needs an adjustment. I have tools in here somewhere, I know. Somewhere. But when I search for them, I find that the drawers are only full of fluids. Except for those that are empty.

Perhaps I just need some rest. I have slept recently, I think. But perhaps not. Yes, I will rest. More later.

I have been thinking. I have plenty of time for thinking, alone in my cage. Or even at the dimly lit place. I hardly notice the noise and the smells there anymore. To me, the only difference between it and the cage is that the wonderful fluids are available there, and in the cage is only water. In my lonely cage.

Did I say that I have been thinking? Yes, I must have said that. Yes. I have been thinking that there is something unusual about this planet. Something subtle and insidious, something that depresses the higher brain functions, that affects memory and judgment and even coordination. Perhaps it is some trace constituent of the atmosphere. Possibly it is mollusk-specific; that would account for their not being the dominant species here. Or possibly it affects every being on the planet. I know I have been severely affected. Yes. My coordination has suffered terribly. I cannot even grip the lock of this cage now; my tentacles fumble and slip, and they shake so much that I cannot bear to look at them. And my mind — concentrating on anything has become a great effort for me. I am dizzy much of the time.

I can only hope that my warning comes soon enough for my fellow explorers. Call them back to the rendezvous immediately. Flush their pulmonary sacs with our own pure atmosphere. The effect may be reversible. It may not be too late.

For me, though, it is too late. I know now that I will not be able to return to the rendezvous. I cannot escape from the cage, and I will not expose our mission by leaving in some unstoppable but nonnative fashion while members of the dominant species are observing. I am not sure I could accomplish that successfully, anyway; I have not been able to recall how to get out of fifth gear.

But all of us on this expedition have known, have we not, that individually we are expendable.

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So farewell, my colleagues, and remember me when you are home again and safe and comfortable among your loved ones. Remember me in this lonely, lonely cage far away.

This lonely, lonely cage.

I do hope my captor picks up another nautiloid soon.

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Life for Pearl had taken on all the aspects of permanent residence in a dentist's chair. The only thing that helped was her collection, a collection of dragons.

Collectible

BY
ALAN DEAN FOSTER

She saw Ehahm-na-eulae clearly for the first time when she discovered Frank and her best friend, Maureen, in bed together. It was a nebulous, leering aquamarine smudge on the wall above and behind the water bed. Its long snout hung over the custom headboard, the sinuous body plastered against the woodwork and wall and ceiling like a huge, torpid spider. Clawed forelegs cupped the matching built-in bookcase at either side of the bed. Membranous wings scratched by livid arterial lines covered the ceiling from wall to wall.

Clearest of all the dimly perceived features were the dragon's eyes, bulbous citrine orbs cut by deep crimson slits: whip-scar pupils. Vitreous yellow bulbs, they seemed to float freely in their sockets like quicksilver on glass, mocking her. The triforked red tongue flicked nervously at her, and the armored tail caressed the ceiling.

Neither Frank nor Maureen noticed Ehahm-na-eulae. They had neither the inclination nor the sensitivity to see him. Pearl had seen him several times lately, but never before in such detail.

Wrinkled covers and sheets fell away from Frank's naked torso as he sat up fast. He brushed long black hair away from his eyes and forehead, stared at her, and mumbled.

"Well, shit...."

How eloquent you are, Pearl thought wildly. How predictable. He was no prize ... but Pearl was no prize-winner. Frank had been far better than nothing, a great deal better than the men she'd become used to. She'd had silly, little-girl hopes, fast fading now.

And Maureen ... helpful, friendly Maureen ... lay lazily alongside traitor-

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ous dreams and smiled slyly, her grin a mixture of innocence and snolly-gostery.

To lose Frank was bad. To lose him to the one woman Pearl thought she could trust was worse. Emotional critical mass. Critical mess, she corrected herself hysterically. You read too goddamn much. She whirled and fled down the hall.

"Pearl ... wait! Pearl, honey...!"

Putting a restraining hand on his chest, the slim girl next to him ran her fingers through the curls there. "Forget it, Frank. There's nothing you can do now. Nothing I can do." She shrugged indifferently. "You can try to help someone like Pearl all you want, but some people are just born sorry."

"Yeah, but I...."

"There's nothing we can do," she repeated firmly. He allowed himself to be pulled down....

Halfway back to her own apartment, Pearl stopped running. It was a foggy morning, and the beach on her left was still deserted. Stooped and jacketed against the Pacific chill, the lonely figure of some retired man stood silhouetted against the early morning light. He held a metal detector, moving the dish-shaped end back and forth across the bronze sand. Back and forth, back and forth, looking more insect than human, he formed a solitary icon of the elderly beach culture.

Waves massaged the tide line, sucking out and digesting the detritus of the weekend: beer cans, lost rubber sandals on their way back to Taiwan, forgotten toys, banana peels, thousands of fading cigarette butts, popsicle sticks, sticky paper cones that had once held miniature cumulus shapes of cotton candy.

Her apartment did not face the ocean, but from her single window she could smell the distinctive sour seaweed odor. She mounted the two flights of stairs, pushed against the recalcitrant door, and stumbled inside. The secondhand alarm clock on the dresser insisted it was seven in the morning. She had thirty minutes to get to work. No time for breakfast, even if she had been hungry. Just coffee.

A switch and several minutes turned the coils of the hot plate red; she, it, and the clock the only alive occupants of the apartment. The hot plate and the ancient refrigerator filled what would have been the closet. There was a tiny bathroom nearby with a stall shower, john, and sink. The white porcelain was badly wounded, ugly black streaks and circles showing through.

Filling a cup with hot water from the pot on the hot plate, she added instant coffee and a little sugar, moved to the chair facing the window. Cream was a luxury not to be thought of.

She sipped tiredly. The water purchased by the beach city was highly

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mineralized. It gave the coffee a strong alkaline taste she could never get used to.

The window looked out on the apartment building across the alley. Yellow roll-up shades walled off the window directly opposite her own. She'd never seen them open. If humanity resided anywhere beyond that impenetrable barrier of faded yellow paper, she had no idea what it might look like.

Nor would she ever inquire. Prerequisites for communication in the megalopolis of Los Angeles were a willingness to initiate conversation and a car. Pearl had neither.

To her surprise, she found her hand was shaking. She'd thought Frank and she had it all together, and that had been helping *her* get it all together. Now her life was back where it had been last year, one of a karma kind with the broken windows in the back of the building that the garbage men consistently refused to pick up, and that the building's manager obstinately refused to break up and place in cans.

She surveyed her collection, slowly, savoring each item so painfully paid for, and managed to smile. Her hand stopped shaking. A hobby was good for the soul, she'd been told. It also gave her something else to think about besides her life, which had taken on all the aspects of permanent residence in a dentist's chair. A friend had suggested the hobby. That friend was dead, killed a year ago by a drunk driver, her body and mind shattered like the windows back of the building's garage.

Bad year, Pearl thought, sipping. Worse than the year before.

But the collection helped soothe her, took her mind off the comic-opera confrontation earlier.

The glass dragons stood nearly aligned on top of the dresser, guarding the steady tick of the old clock. Four dragon planters scattered around the room held plants in various stages of decomposition or health. The two coleuses were doing well, but they were notoriously tough. The dieffenbachia was not as strong, and the purple velvet was nearly dead. But the planters alternately grinned or growled or pouted back at her, unchanged and frozenly enthusiastic.

Wings and teeth, claws and tails, scales and eyes of various size and composition and color filled the tiny room. They hinted at unknown lands and times, strange worlds where grace and power were the norm instead of the exception, and wonderful magics made life a kaleidoscope of unending delight.

At night a dragon light lit the room, its horned head supporting the torn shade, a forty-watt bulb embedded neatly in its upcurving spine. From the ceiling hung a dragon kite, vast paper wings hiding the worst of the peeling plaster. Everywhere dragons concealed, brightened, or served

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some useful function.

Her thoughts drifted on the smell of decaying kelp and salt. Eventually they came round to consider the mist shape she'd thought she'd seen on the ceiling, wall, and backboard of the bed ... this morning. A fine dragon shape that had been!

She recalled the vein marks in the wings, the powerful talons, and the floating, limpid eyes. For a vision it had been very well defined. She could imagine herself seeing something like it in a moment of great mental stress. It resembled none of the dragons in her collection, nor any she'd seen but been unable to afford.

Surely it had been staring back at her. Its expression puzzled her. At first she'd imagined it to be a leer, but that could have been due to her own unfortunate position at the time, and the circumstances of the moment. It could have been expectation, she thought deliciously. Or perhaps indifference, or contemplation.

Another puzzle came from the name. Ehahm-na-eulae. All of her dragons had pet names, but nothing like that. It had been there, in her head, simultaneous with the vision. Where had it come from? It sounded faintly biblical, but many strange names sounded "faintly biblical." That's a product of your upbringing, she told herself. Life had been more solid in Oklahoma. And colder.

Ehahm-na-eulae. eHAHM-na-eulae ... Oriental, maybe? She'd certainly read enough about Oriental dragons, everything that was available in the local library. Always she had the books to herself. Usually she had the library to herself. In her neighborhood, literacy was not considered a prime ingredient for survival.

If not Oriental, not biblical, how about Hindu? She resolved to research the lineage as soon as she had the chance. It would be fun. Anything that involved dragons, even imaginary ones, was pleasurable. It was research in the real world that was difficult. Like trying to locate a real friend or true lover (and forget such fantasies as true love).

She washed the dragon spoon carefully, then the dragon mug. Its tail formed the mug handle. She moved to the dresser and brushed back her hair, the dragon framing the top of the mirror holding the mirror firmly for her.

The face that looked back at her out of the mirror was used. Lines formed in her forehead like ripples in the sand, and there were sandbags beneath each eye. No time or need for makeup now. She tucked the blouse back into her skirt and secured her hair in back with a rubber band.

Next to the dresser was a small cabinet. A dragon of Mexican onyx rested on top. Inside the cabinet were additional clothes, other personal effects, and old movie magazines. The top drawer released a couple of bottles, thick-walled and squat, with se-

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ductive mouths now sealed tight by pungent corks. She hesitated, chose one.

She sipped ladylike from it. Honey-colored liquid burned her throat. She stared at the bottle, muttered a silent whathehell, and downed a full, gut-scouring swallow. She recorked the bottle then, inordinately proud of not choking, and forced herself to put it back in the cabinet and close the doors.

Two tiny china dragons flanked the black hulk of the telephone. She stared at it for several minutes before dialing. The click-click ricocheted inside her head. Cigarette ... I wish to God I had a cigarette.

The phone made some peculiar, unfamiliar noises. A strange voice came on.

"Is this...?" and the voice repeated Pearl's number.

"Yes ... operator? What's the trouble?"

"I'm terribly sorry, Miss, uh ... Sommer. This is the United Telephone business office. There seems to be some discrpancy in our records. You appear to be two months behind in your account? I'm afraid until at least the oldest bill is paid ... you understand."

"But I...." She stopped herself. She was a lousy liar. "Look, please, can I make one collect call?"

"I don't...." The voice turned unexpectantly human. "Collect? I suppose that would be all right. What number would like, please? I'll try and connect you through this exchange."

"Thank you, operator, really. I promise I'll get those back payments in right away, right away." She gave the number. Dialing noises came back at her. Fearsomely beautiful, a dragon on the far wall snarled down at her from a poster and gave her courage.

Faint noises, then: "I have a collect call for Frank from 'Pearl.' Will you accept the charges?"

Mumbling ... two mumblings, one female. A single *click,* final in the room, like the opening of a switchblade. Then the operator's voice, embarrassed.

"I'm sorry, Miss Sommer. The...."

Pearl hung up. On the operator, on Frank, on that incredible little bitch Maureen, on that part of her soiled world. Golden haze clouded her thoughts, and she thought again of the bottles in the cabinet. The onyx dragon guarding it sat expressionless, solid.

No ... no, dammit....

She happened to glance at the clock. It was nearly eight. Oh, God.

She splurged on bus fare. Normally she walked to work, but she happened to reach the stop just as the bus was pulling up. It would save her twenty-five minutes.

The precious quarter clanked forlornly as it tumbled out of sight into the collection box. She walked unsteadily toward the back of the bus. People turned nervous or curious

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stares on her. She felt like shouting, screaming back at them. There wasn't a damn thing wrong with her. Not a damn thing! She was as good as any of 'em — better, even. Just some bad luck lately. That didn't affect the way a person looked, did it? Then what were they all staring at? Mind your own goddamn business, she yelled silently at them.

Poor commuters crowded the bus, those unable to afford a car, the Untouchables of the freeway society. Brakes screeched a shrill about-to-stop warning, and she found herself stumbling forward, oddly fascinated at her inability to keep her balance. A vapid-faced youth in glasses and jeans caught her, kept her from falling. She almost said thank you, until she felt one hand fumbling beneath her skirt.

He smirked at her, the oily grin making her angrier than the cheap feel. He exited the bus before she could curse him.

Her face was burning, she slumped into a seat. His hand was branded into her flesh. Down the aisle, an old black leaned on his cane and chuckled at her. She turned away, pressed her forehead against the window. In the chill of early morning, it was comfortingly cool. By noon the fog would have burned off and the coast would be sweltering, unusually humid and hot for southern California.

A streamlined, writhing shape cavorted through the air outside the bus and glared with enormous yellow eyes back into her own. She sat up straighter on the worn seat. Ehahm-na-eulae, she thought excitedly. Again, here, outside the sanctum of her collection.

He was very clear now, the outline sharp and precise, each individual scale outlined in sunlight. This morning's horror, the sallow-faced pervert who'd accosted her, all faded at the sight of the glorious bewinged apparition paralleling the bus.

He kept pace easily, skittering across the tops of cars and trucks. One time he settled himself on the hood of a big semi like the king of all hood ornaments, gleaming talons clutching the engine cover while the triple tongue flicked tantalizingly at her.

He launched himself ahead to perch nimbly on a stoplight, balancing himself with translucent wings that filtered the fire from the morning sun, an eagle atop a metal broomstick.

For the first time she saw true colors, scales of metallic iridescent green and blue shot through with slivers of silver. Once he opened his mouth wide and emitted a flash of pure dragon flame and smiled haughtily at her as if to say: I am pure, I am clean, I am dragon of a lineage unbroken back ten thousand years through time and space, and this is but the barest hint of what I, Ehahm-na-eulae, can do!

She almost missed her stop, and when she stepped onto the sidewalk, the dragon-wraith was gone.

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Howard Johnson's lay two blocks north, a threatening tower of twelve stories that lay athwart two of the town's main streets like a vision out of Piranesi. Within lay twelve stories of soot-filled ashtrays to be emptied, spilled sodas to be mopped up, torn paper to be collected by hand, and a Hades of missing towels that she would have to pay for. Worst of all were the hectares of unmade beds that she would painfully have to remake, only to find on the morrow that, like Tantalus, she would have to begin again from the bottom.

A vast presence confronted her in the building's first sublevel. It stood by the clock that held the card that recorded the substance of her life. Miss Perkins was a towering harpy, a violent, gutter-mouthed giant of a woman with shoulders like a fullback and a voice like a Neanderthal.

Actually, Emma Perkins was a smallish middle-aged woman of pleasant disposition and firm but fair inclinations. She was the supervising housekeeper, and she looked sadly at Pearl as she came tottering in, breathless from running the two blocks from the bus stop.

"You're forty minutes late, Pearl," she said, more pityingly than accusatorially. "That's three times in two weeks." She eyed the floor uncomfortably. "Last time it was over an hour."

"I ... I know, Miss Perkins. I'm sorry. I've had some trouble and...."

"Everyone in this world has trouble, Pearl. I have trouble, my sister Jane has trouble, China has trouble. The world's full of troubles."

"Yes, ma'am."

"The trick is not to bring your troubles to work, isn't it?"

"Yes, ma'am, but I...."

"Some of us are better at doing that than others. That's a sad fact, but still it's a fact." She stared at Pearl, shocked by her appearance and trying hard not to show it.

"I'll ... try to do better, ma'am. Really I will. I won't be late ag—"

"I understand, dear. You look terribly tired." Miss Perkins forced a smile. "Why don't you take a few days off? There's a three-day weekend coming up week after next, and we'll need everyone at full strength then." She took one of Pearl's hands, patted it in grandmotherly fashion.

"I'm sure with a little genuine rest and some time to think about what you really want, you'll find yourself feeling much better." She used the hand she was patting to guide Pearl toward the door leading out to the subterranean garage.

"Yes," Pearl began desperately, "but I need the...."

"I understand, dear." The door was closing behind Pearl. "In two weeks, when you're feeling better. If you still want the job." The door closed.

Pearl stood, swaying slightly. Then the import of what had just happened

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penetrated the fog in her brain. "Goddamn you, you rotten old whore! You can take your job and shove it! You hear me? SHOVE IT!"

The door did not reply. Pearl turned, started toward the distant exit of the dark garage. Something made a noise behind her. She stopped. The sound came again, louder this time. It sounded like garbage cans being moved around on the level below hers. It echoed through the otherwise deserted garage, bounced off shiny new Chevys and Fords. She turned.

A head was emerging from between a Corvette and a big muraled van. Vast globular eyes stared at her, stared through her own eyes into the brain beyond. The red slash of a pupil expanded in the left, then the right one, contracted lazily as the eyes rolled independently, like a chameleon's.

Teeth of all sizes and shapes were revealed by the hungry, half-opened mouth. Some were curved and outthrust like tusks. Others were slim as needles and just as straight. A few curved backward like the fangs of a snake.

Orange flame came in hot puffs from the dark gullet, the fire shining on the crystal cave inside those jaws. The dragon padded toward her on massive cushioned feet, the only sounds the faint roar of its breath and the regular tick-click its claws made on the concrete.

Pearl was backing instinctively away from this very real, very uncuddly monster. She was alone in the garage. "M-m-Miss Perkins ... Miss Per-*KINS*...!"

She spun and ran, feeling the hot breath closing on her back, expecting her skin to shrivel and crisp, or hot fire of another kind to shoot through her as long teeth sank into her back and legs.

Then she was out in shockingly bright daylight. She slowed to a reluctant walk. A glance over her shoulder showed nothing emerging from the cave of the garage behind her. People stopped staring at her when she ceased running. A mother inconspicuously shooed her two children across the street, away from an encounter with Pearl.

She lifted her head, lengthened her stride, and assumed a confident air. I see dragons all the time, she told herself firmly. Real ones. In my apartment. When I'm under pressure I sometimes conjure up imaginary ones, that's all. It happens when I nightdream, sometimes when I daydream, and occasionally, like today, when I'm not thinking intentionally about them at all. They're my refuge, and it's good to have a refuge, she told herself.

Idly, she examined the faces around her, the awkward bodies flowing past. Dragons are always perfect, she noted disdainfully. Fat ones, thin ones, big or small, they're always perfectly proportioned and exquisite of

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design. Their wings are never too big, their heads never at the end of necks too long, their tails constantly producing just the proper counterbalance for weight and length. Not like clumsy, inelegant human beings....

That night she finished the bottle of the morning and part of another. It was dark outside now, cooling off rapidly as the fog trundled in to cloak the beach communities.

Somewhere nearby a stereo was playing a scratched copy of a song she thought she recognized, full of electric guitars and challenging moans. A stubborn car was grinding dully on the street below, refusing its impotent owner's fervent demands to turn over.

She tried the phone again. It was possible the business office hadn't disconnected her yet. Surprisingly, there was a dial tone. She fingered the numbers.

The voice that answered was not Frank's. She could even have coped with Maureen's, anyone's, just someone familiar to talk at, if not to. But the voice was perfunctory and mechanically unsympathetic: a recording.

"I'm sorry, but the number you have reached has been disconnected, and there is no new number."

The phone hummed patiently at her until she placed the receiver back in its cradle. She lay back on the bed, hearing the springs creak in the room's remaining heat, and began to shake.

Jesus ... got to stop this. C'mon, woman ... get ahold of yourself. Cigarette ... got to have a cigarette.

She fumbled unsuccessfully through the drawer in the phone stand, then had a thought and looked beneath the bed. A crumpled white rectangle lay there. Exhausted from the effort of placing her swimming head lower than her torso but feeling triumphant, she picked it up. Two white cylinders remained in the pack.

Selecting the unbroken one, she located matches and lit up, leaning back contentedly against the stained pillow. The smoke's usual acridness was smothered by the residue of the liquor in her throat. She puffed deeply. Then she began to cry.

A scratching penetrated the room. It came from the open window. Her eyes turned, tried to focus through the smoke in front of her face and behind it. In the cabinet the brown lines of the onyx dragon seemed to shimmy. A faint breeze stirred the wings of the dragon kite, set it turning slowly overhead.

Clean and sharp as a chef's cutlery, the talons slipped over the sill and into the room. Bottomless eye-pools of yellowgold stared at her. She was not afraid this time. Maybe it was the dragon's deliberate pace, maybe the familiar surroundings of her own apartment, but she wasn't afraid.

All the dragons in the room —

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planters of clay, miniatures of china, poster paper and ceramic cup — seemed to expand slightly, turn slightly. She felt their eyes on her.

Silent as a cat, the adamantine, shimmering body slid through the window. Once inside it filled much of the single room. Wings unfurled; strong and wind-defying, bumping against the ceiling.

Enthralled, she watched as it moved toward her on powerful legs. Foreclaws gripped the metal end of the bed. The magnificent head moved from side to side on the muscular iridescence of the long neck, hypnotizing her, those cabochon eyes pulling her up and into the dragon soul.

It moved slowly forward. Somehow the bed held its great weight without collapsing. Wings fluttered, irritable in the confined space. They blotted out the ceiling and obscured any hint of the pale, sickly plaster or the weak incandescent light.

Then Ehahm-na-eulae was over her, and she could have reached up and run her fingers over the thousand teeth, some curved, some straight, some hooked fanglike backward. The great eyes no longer moved independently. Both stared down into hers. Ehahm-na-eulae moved a little nearer, only its tail dragging on the floor as a mesmerized Pearl listlessly dropped the cigarette. The dragon opened its mouth, and she felt fire wash over her, clean dragon flame, light at first but rising in intensity. It didn't hurt at all. She'd known it wouldn't. It cleansed and didn't hurt at all.

She embraced the flame and Ehahm-na-eulae of the dragons and line of dragons that was ten thousand years old, as old as the forever freeing flame that engulfed her for the first and final time, purified and cleansed Pearl who was only seventeen....

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Installment 8: *In Which Some Shrift is Given Shortly, Some Longly, and the Critic's Laundry is Reluctantly Aired*

Uncle Ayjay (to whom I seem to make reference an inordinate number of times, though reports that we are "an item" are wholly unfounded; we are just friends, despite *USA Today*'s front page revelation on December 13th that he gave me a 20-carat oval sapphire engagement ring) once, a long time ago, when he was trying to teach me how to write, said: "It is not acceptable in trying to create characterization to say, 'He looked exactly like Cary Grant, except the ears were larger.'" By extension, what *Obergruppenfuehrer* Budrys was telling me, is that describing something solely be reference to an existing icon ain't strictly kosher. I mention this as admission of malice aforethought when I write the words that follow:

In 1983 20th Century Fox released a film titled *Monsignor,* starring Christopher Reeve. In merely one year it has levitated to the top of the list of Worst Movies Ever Made. Worse than *Plan 9 From Outer Space*; worse than *A Countess from Hong Kong*; worse than *The Terror of Tiny Town*; worse than *The Oscar*.

Monsignor is the most astonishingly stupid, cataclysmically wrongheaded, awesomely embarrassing, universally inept stretch of celluloid ever

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thrown onto a movie screen. One views the film with one's mouth agape in stunned disbelief that so many alleged professionals could so totally have taken leave of their senses as to delude themselves that this cosmic stinkeroonie was worth making; or, having so deluded themselves that, once having screened it, the abomination was worth releasing save for cruel laughter. *Monsignor* is an Olympian exercise in imbecility.

Describing something solely by reference to an existing icon ain't strictly kosher.

SUPERGIRL (Tri-Star Pictures) exists and functions on precisely and exactly the intellectual and artistic level of *Monsignor*.

This has been a review.

On the other hand, Tri-Star has given us a genuinely spiffy sf adventure written and directed by Michael Crichton; goes by the name RUNAWAY. And it is what, in my view, a good sf movie ought to be: imaginative, logically consistent, entertaining, unpredictable, exciting and filled with stuff we've never seen. It's not dripping with memorable characterization, but apart from that one scant deficiency which is an acceptable tradeoff for the goodies it proffers in abundance (and a last line I can live without), *Runaway* is the filmic equivalent of "a good read."

Tom Selleck is engagingly cast as a police sergeant in charge of the Runaway Squad of a major metropolitan city's law enforcement department in the not-too-distant. Runaways are robots that have gone bonkers and are doing what they oughtn't. The first part of the film swiftly and neatly delineates a society almost identical to today's, with the addition of many kinds of household and industrial machines that perform the kind of scutwork labor white folks abhor and consign to peoples bearing green cards. And though prophesying what our world will be like twenty years hence, with robots to do our cooking and welding, is a mugg's game (and not even sf's vaunted claims of being able "to predict the future" hold up under close historical scrutiny), Crichton has been a model of rectitude injecting those little extrapolative touches we all slaver for. It all seems plausible, which is the most we should ever ask of this kind of woolgathering.

When people start getting killed by otherwise innocuous mechanical helpmates, Selleck finds himself going *mano-a-mano* with the psychopathic high-tech killer, Dr. Luther, played with exquisite malevolence by rock star Gene Simmons, leader of Kiss. (Who walked up to me at the screening to say he was a fan of my work, and scared the shit out of me even *without* his concert makeup. Thank god he didn't stick out his tongue at me.)

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Additionally, as if a good original plot, endless action, terrific visuals and heartstopping danger were not enough, *Runaway* showcases the talents and beauty of three women for whom one might gladly burn the topless towers of Ilium: Cynthia Rhodes, Kirstie Alley and Anne-Marie Martin (regularly seen on the *Days of Our Lives* daytime serial). Now ordinarily, making a remark about the pulchritude of the actresses in a film would get both Vonda and Joanna tsk-tsking at me; but since the star of this movie is a sex object for *women*, I take obscene advantage of the opportunity to reprise that blissfully ignorant condition of chauvinism in which I existed for thirty years before Vonda and Joanna put me on the floor with their knees in my chest and pointed out logically where my thinking was screwed.

As for that last line, it's goodness knows a tiny enough nit, but I mention it so Michael doesn't do it again. At the end of the film—and I'm giving nothing away by telling you this, trust me—Selleck and Rhodes have fallen in love. Both are cops, and both have performed athletically and competently throughout the story. But as they kiss, Selleck says to her, "Do you cook?" She answers, "Try me." Apart from the grating cliche of "try me" (which, if the universe is kind, I will never hear from a movie screen again as long as I live or even after, on a level of awful familiarity with someone saying "Just like that?" and the reply being "Just like that"), and the recidivist resonance of times past when no matter how competent a woman might be at non-housewifely occupations, she would only be fulfilled as a "real woman" if she could cook and clean and bear homunculi, the film prominently includes Lois, a cook/babysitter robot in Selleck's home. So Ms. Rhodes should have replied to Sgt. Ramsay's question with a line something like, "I don't have to; Lois can do it. I can fuck; Lois can't do that."

But perhaps I ask too much of the universe.

Then again, when I'm elected god this year . . .

The ultimate variation of the cinematic convention commonly referred to as "Boy and Girl meet cute" (ref. Dudley Moore and Liza Minnelli in *Arthur*) can be found in a sappy, nay *goofy*, clinker called STARMAN (Columbia Pictures).

Here in glamorous but Machiavellian Hollywood the Writers Guild has long fought the battle of the possessive credit. You know what I mean: Walt Disney's *Pinocchio* (written by Carlo Collodi); Richard Attenborough's *Gandhi* (written by John Briley); Brian DePalma's *Scarface* (written by Oliver Stone). Directors can continue to flummox the studios and the public only as long as they

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can continue to cloud our thinking with the *auteur* theory that puts them forward as "the creator" of a film. We are talking about power and money in the possessive credit. They get around it in a thousand ways, this bad feeling they stir in those of us who *actually* create the dream: A Brian DePalma Film / Brian DePalma's Film of / A Film by Brian DePalma . . . you get the idea. So the Writer's Guild goes on fighting this one, against the Producers Guild and the Director's Guild, and not much progress is made, because we're talking about power and money.

However, in the case of JOHN CARPENTER'S STARMAN, I suspect not even bamboo slivers under the fingernails could get scenarists Bruce A. Evans and Raynold Gideon to ask for the possessive credit. It's that dumb.

(On the other hand, which I've been doing a lot in this installment, they *are* the guys who wrote this emgalla, so who's to say how deeply runs their brain damage.) (Emgalla: a South African wart hog.)

Starman's plot is at least thirty-five years old. It is a first contact story that acts as if *The Day the Earth Stood Still* (1951), *The Thing* (1951), *The Man Who Fell to Earth* (1976) and *E.T.: The Extraterrestrial* (1982) had never been made. Out goes our space probe, it's found by an alien intelligence, the e.t. comes to Earth, the e.t. shape-changes to assume the persona of a woman's dead husband, they fall in love, he runs around a lot trying to evade people trying to capture him, he gives her a baby, and he leaves the planet. No explanation is ever given as to why he was here or why, if he went to the trouble to come here, he runs around madly trying to escape contact with the species he sought to contact in the first place.

Again we have the stupidity of a spaceship whoooooshing noisily past in airless vacuum, again we have the inept and malevolent scientists and military schmucks who seek only to imprison or kill the visitor, again we have sophomoric definitions of "love" and "friendship" as explicated by subliterate characters. What we have here is a 1948 movie made in 1984.

A waste of time.

A contrived, simpleminded, *sappy* film. My patience is fast running out with John Carpenter, who is a talented man, yet who seems hellbent on cranking out one dreary clot after another. And they crucified Michael Cimino for *Heaven's Gate*.

Just wait'll I'm elected.

I'll save *2010* and *Dune* till next time, because it has become necessary to say something about THE TERMINATOR (Orion Pictures).

Yes, folks, I'm more than painfully aware that *The Terminator* resembles my own *Outer Limits* script "Soldier" in ways so obvious and striking that you've been moved to call me, write

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letters, send me telegrams and pass the gardyloo along by word-of-mouth with my friends. You really must cease waking me in the wee hours to advise me I've been ripped off.

As I write this, attorneys are talking.

Despite the foregoing, permit me to recommend *The Terminator*. It is a superlative piece of work and deserves its success. Director and co-author James Cameron has made an auspicious debut. The film is taut, memorable, and clearly based on brilliant source material. More than that I am not at liberty to say.

If for no other reason, I would celebrate this nifty movie on the grounds that someone has, at last, figured out a way to use Arnold Schwartzenegger effectively. I suppose I'm a bit tired of seeing that *Friday the 13th* horror ending in which the dead monster comes back to life again and again, but in context it plays like a baby doll this time.

Now if you go to see this movie, I want you to put out of our minds all memory of "Soldier" or my other *Outer Limits* script "Demon With a Glass Hand" or my short story "I Have No Mouth, and I Must Scream." Also, do not think of a green cow.

I would be less than responsible if I did not recommend a few non-sf films for your attention.

Beverly Hills Cop with Eddie Murphy is a joy. It was directed by Marty Brest, who needs a hit, so go see it. And do take notice of the actor who plays the role of Taggart, a cop. His name is John Ashton, and he damned near steals the film from Murphy, if you can conceive of such a thing.

Don't miss David Lean's first film in fourteen years, based on the exquisite novel by E.M. Forster, *A Passage to India*. You might even read the book first, couldn't hurt.

The River is the best of the recent spate of country movies in which people lose the farm, and is the only one I've seen that made me give a damn if they did or didn't.

The Cotton Club is Coppola, beyond which nothing need really be said; but for those of you who aren't as much in love with every foot of film Francis Ford has ever turned out, know that *The Cotton Club* is a wonder.

Now I know I'm not supposed to be doing this kind of business, urging you to see stuff outside the genre, but my goodness, you'll need *some*thing to wash the taste of *Supergirl* and *Starman* out of your heads.

Think of me as your mother. At least until I'm elected god, on the other hand.

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This is the first of two stories we have from a most talented new writer who tells us that she grew up in Southern California and managed to escape with her life. She now lives in Denver, performs music at local cafes; her writing has appeared in the DAW fantasy anthology, AMAZONS II and in local newspapers.

The Shadow of the Starlight

BY
GAEL BAUDINO

August was hot, as was typical for late summer in Denver. In the morning the sky was blindingly blue, with a yellow sun climbing into the sky above the flat horizon that looked out onto Kansas. The sun raised the temperature, and raised also the tall thunderheads over the mountains to the west that brought a foretaste of dusk to the midafternoon and left the city simmering as though under the lid of a pot.

And Lauri pulled the company van into the parking lot outside Treestar Surveying, deciding that Elves could sweat just as much as humans.

She parked the van and ran her fingers along her hairline. Moisture trickled down her hand. Hot. Too damned hot. And the southern parts of the city had been developed too recently for there to be shade trees of any appreciable size.

She wiped her fingers on her Levi's and, with a flick of her head, settled her dark hair over her ears, covering them for the benefit of the new secretary. Amy had been with the company only a couple of weeks and had not yet realized that she was working with a myth. It was difficult to decide on a way of telling her.

Lauri swung open the door into the air-conditioned office, glad that she did not have to worry about that particular problem. That was Hadden's department. He owned the company. He also had to keep his ears covered.

Amy was blonde, with blue eyes, and as usual, she was fighting with the typewriter as Lauri strode into the room. Lauri waved to her on the way back to Hadden's desk.

"Bloomfield's happy," she said to him.

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"Good." Hadden leaned back in his chair. "How was the drive?"

"You will notice," she said, fluttering her work shirt, "that I am dripping. A lot. When do we get the air in the van fixed?"

Hadden's gray eyes twinkled, a just-perceptible flash of starlight. "Probably about the time we get the first snow."

"Thanks." The phone began to ring. "Probably doesn't matter, as long as I don't have to make any more two-hour trips."

"Nope. Bloomfield has his elevations, right on schedule, and that should settle it."

"Lauri," Amy called. "It's Mr. Bloomfield."

Puzzled, Lauri picked up the handset and punched in the line. "This is Ms. Tonso," she said. She listened for a minute, her lips pursed. Then: "I'll . . . take care of it immediately, sir." There was a slight edge to her voice, and when she hung up, Hadden looked at her curiously.

"Problem?"

Annoyance was creeping up on her, and she did not like it. Closing her eyes, she took a deep breath. There was a sky full of stars that shone within her, and she could see them now, floating in the velvety blackness. She let them calm her, breathed their light, let the tension from the drive in metro traffic seep away. She felt Hadden take her hand, felt the tension seep away a little faster. When she opened her eyes, she spoke calmly. "The graphs and tables were missing from the report. Now, I saw them yesterday, just after Amy got through typing them. I suppose they're around here somewhere."

Amy approached, a folder of papers in hand. "Is this what you're looking for?"

Lauri riffled through them. "Yeah. What are these doing here?"

Amy shrugged, an embarrassed smile on her face. "I thought we were supposed to keep them here. So I took them out of the report."

Lauri looked at her silently, then at Hadden, then down at the telephone, then finally at the plate glass windows that gave out upon the sizzling parking lot.

"Did I do something wrong?" asked Amy in a small voice.

The young woman was frightened, Lauri could tell. Two weeks on the job, and she had fumbled badly. Nor was this the first time: there had been misfiled pages, missent letters, checks and bills that had, seemingly of their own accord, crawled into other dimensions. She closed her eyes, found the stars again, figured that Amy fully expected to be fired on the spot.

She opened her eyes. "I'll just run out to Golden again and give Bloomfield the pages." Her voice was calm, firm. She met Amy's eyes. "Be at peace."

"Uh . . . thanks." The blue eyes were moist.

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"You can go back to your desk, Amy," said Hadden. "We'll handle the rest."

Amy was still staring at Lauri, and a single tear was winding down the side of her nose, leaving behind it a streak of mascara.

Without thinking, Lauri reached out and laid a hand lightly on Amy's shoulder. The young woman flinched slightly as though she expected to be struck. "It's all right," said Lauri. "Really." The stars were still with her, leaching away any anger she might have felt, and she noticed that the blue in Amy's eyes had deepened. Something flashed there suddenly. Lauri caught her breath and removed her hand.

Amy stared at her, stunned. "I'll . . ." She fumbled for words, wiped at her eyes. "I guess I'll get back to work."

"Be at peace," said Hadden as she walked away, and then he turned to Lauri, who was still wondering what she had seen.

"I don't understand," she said.

"Now you know how it happens," said Hadden, and Lauri, startled, looked at him, and met his eyes that flashed starlight.

Now you know how it happens. The words were still with her ten miles later when she took the on-ramp to Highway 6, heading for Golden. She had not asked Hadden what he had meant, but then again, she did not feel that she had to. She herself had not always been Elven. Four months before, in fact, she had never closed her eyes and seen the stars shining in the darkness. Four months before, she had been human. But there was old blood in her veins, and it had awakened, and it had transformed her. And she had never regretted it for a moment.

Highway 6 wound on toward the foothills, a ribbon of concrete that split the scrubby landscape and passed through the urban sprawl where condominium complexes rose boxy and new from the arid ground. Still, she was not seeing with her old eyes, and the condos were pretty in their own way, the sunlight glinting pleasingly from freshly washed windows and glowing on cedar shake roofs. And, regardless, the land still lived beneath it all, fertile and rich, though dry. And if people needed a place to live in the growing city, those same people also had old blood in their veins, and someday, more than likely, it would awaken . . .

. . . and Lauri wondered about Amy. The Elven blood could wake up in many ways: spontaneously, or by the presence of others in whom it had awakened, or it could be triggered outright. Lauri had been half among the stars when she had touched Amy, and the effect had been electric. The deepening blue of the woman's eyes. The quick flash.

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"What the hell did I do?" she mumbled out loud as she pulled off the highway into Golden. "And how far did I stick my foot in it?"

She was drenched when she got to the Bloomfield offices, but she grinned as she handed the papers to the contractor.

On the road again, sun just as hot. Lauri settled her sunglasses and eased her shoulders. The inbound traffic was light, and she thought back to the incident in the office. Amy had been afraid. No, not afraid: terrified. At the thought of being fired? Lauri could not see why. The job market certainly was not that tight, and Amy had good references. Probably she was making mistakes because she was nervous.

Nervousness was, perhaps, understandable. But that fear. There was too much fear there. It was not the job. It was something else. She replayed the event in her mind, watched again that tear, stained with mascara, creep down the side of Amy's powdered nose.

It was late enough that she simply took the company van to her apartment. When she got home, she flicked on the air conditioning, stripped, and sat nude in her living room with a cold beer.

She was still thinking about Amy, and she finally gave up stewing about it and called Hadden. He caught it on the first ring. As usual. It was as though he had been expecting the call. As usual.

"All right," she said. "What did I do?"

"I think you know," he said. His voice was calm, as it always was. Lauri had noticed the tendency in her own voice since she had changed, but he had it down to an art.

"I woke up the blood."

"You did."

"Is this what you did to me?"

He laughed, and the sound was clear and bright even over the phone. "Not exactly. You were already coming around when I reached out to you, so I don't feel that I machinated everything."

"So what do I do now?"

"Keep an eye on her. If she runs into trouble, try to be there. It's been only four months since you changed . . . so you should remember how it goes. Try to show her that you care."

Lauri hestitated, thinking. "That's going to be kind of rough. Amy already has me pegged as some kind of bitchy libber . . . and she's right. I doubt if we have much in common."

"Ah, but you do. You're an Elf, and she's going to become one."

"Yeah." Her tone was doubtful. "And there's one other thing. Did you feel the fear coming off her this afternoon?"

"I did."

"That wasn't just about losing her job."

Silence on the other end of the line. After a while Hadden said: "I

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think humans have a lot of fears. Some of them we can't comprehend. Amy will probably lose her fears as she changes. I hope so."

She hung up feeling vaguely dissatisfied, as though Hadden had missed something in his evaluation. She tried to salve her thoughts with his comments about Amy's eventual change; but when she got into the office the next morning and found that Amy had a black eye, she was not reassured.

It was not a bad injury, and she had attempted to conceal it with makeup. Lauri centered herself among the stars, made sure her voice would be calm. "Hi. How are you doing?"

"Hello." Amy hardly looked up. She was hunched over the typewriter as though she were to be flogged, and she did not seem inclined to talk. Lauri waited by the reception desk until Amy finally met her gaze. Again she saw the deepening blue, the slightest trace of a glimmer.

"Have a good day, Amy." Lauri tried to put concern and caring into her voice, but she fumbled it, and Amy looked frightened.

"Thank you."

"Yeah . . . take it easy." Lauri retreated to her desk, checked her schedule. She was going to be out in the field that day with Hadden, and she figured that it would give them a chance to talk. She did not say anything, though, until they had broken for lunch. They had found a quiet park, away from main thoroughfares, and had sat down in the shade of a tall locust tree.

Lauri opened her lunch, bit into a ham-and-cheese sandwich. "Amy has a black eye," she mumbled.

"I noticed." Hadden was busy with tuna salad.

"What do you think? Did you ask her about it?"

"I asked her about it, but she froze and didn't seem to want to talk. I didn't want to pry."

"Something's wrong somewhere," said Lauri. "I feel it."

A sparrow lit on her knee, looked at her. She reached out, stroked the bird absently, then fed it a bit of bread.

Hadden grinned. "Remember when you wanted to pet birds?"

The sparrow was joined by two others. Lauri fed them also. They looked at her expectantly.

"They want more," said Hadden. He reached out and scratched one of the birds. "Here, let me show you." He beckoned, and a sparrow flicked over to his hand. "You always know that Elves are a soft touch, don't you?" he said to it. He glanced at Lauri. "Find your stars, breathe in their light, and let it flow into your hands. Watch."

He cupped his hands slightly around the bird and closed his eyes. There was always a soft shimmer about him: that was part of what the blood did. Since Lauri had the blood

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also, she could watch as it grew stronger in Hadden's hands until they seemed wrapped in silver light. The sparrow fluttered and fluffed as though in a warm bath. When Hadden opened his eyes, the birds chirruped at him and flew off.

"Your turn," he said, sitting back against the tree.

She found her stars, settled herself, and let the light flow. When the birds had taken wing, she looked up. "Did you just figure these things out as you went along?"

"In a way. Since I was one of the first Elves in Denver, I decided that I had to do some experimenting. I imagine we have all sorts of talents. All we have to do is figure them out. Did you know that Ash healed one of her neighbor's boys the other day?"

"That's pretty good." Lauri went back to her sandwich. "What did he have? A cold or something?"

Hadden was looking off into the distance. "Leukemia," he said quietly. "His mother was just taking him off to the lab for the tests, and Ash looked at him and saw it. Somehow, she managed to . . . to whatever. When the test results came back, they were negative."

Lauri had not moved since Hadden had named the disease. Ash was a small, slender woman, the owner of an employment agency, and Hadden's lover. A healer? Leukemia? Lauri looked at her hands. "That's . . . that's great." She whispered the words.

Hadden's voice was still soft. "I wonder if we can't all do things like that."

"Kind of puts a different light on being an Elf."

"It does. It's not all singing and dancing in the firelight. Stop shaking, Lauri. Be at peace."

She closed her eyes again, let the starlight calm her. "It scares me, I think," she said. "I've looked at all this as just . . . a different way of living. I never thought . . . well . . . about having some kind of power."

Hadden did not reply for a minute. "What do you think happened between you and Amy? Do you not call that power?"

It was Lauri's turn to be silent. Finally: "I never thought of it that way. I guess so."

Hadden might have been reading the future in the scattered cloud-formations. "I don't know why we're here now," he said after a while. "I don't know why the blood has started to wake up in people. But maybe this is some kind of clue: we can comfort, and we can help, and we can heal. We ought to pay attention to that."

They got back to the office that day just as Amy was collecting her things. She looked up as they entered, and Lauri was relieved that some of her smile was back. "Mr. Bloomfield called," she said. "He's delighted."

"Good," said Lauri. "It was worth the time."

Amy blushed slightly and shrugged.

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When she turned away, Lauri sensed the barest hint of a gleam about her.

"What are you doing for dinner tonight, Amy?" she asked impulsively.

The question seemed to jar Amy. Lauri sensed that some scenario was playing out in her mind, sensed, again, the fear. "I have to get home," she said in a rush.

"O.K. Some other time, maybe."

"Right." Amy nodded, gave her a quick smile, and hurried for the door, but paused and turned. "Uh, maybe tomorrow night?"

"Sounds good."

Amy darted out. Lauri stood, hands on hips, watching her get into her car. "For a minute there I thought she was worried that I wanted to get in her pants or something."

Hadden shook his head slightly. "I doubt that she even knows you're gay."

"I've never tried to help anyone through the change."

Hadden put his arm around her. "It teaches you a lot. Worried?"

Lauri let the question hang. Ash's little neighbor had been afflicted with leukemia. Amy, she could sense, had a different problem, and Lauri had no definite idea what it was, though a faint suspicion was forming in the back of her mind, one tinged with the rank sweat of violence. She could have reached out among the stars, linked with Amy, read the woman like a book. She could have been certain that way. But that would have been a violation, like rape.

"Yeah," she said at last, after Hadden's question had grown cold and stale. "I'm worried. I don't know what to do." She shook her hands to indicate herself. "I've been this way only four months, so how the hell am I supposed to be qualified? Maybe you should take care of her."

"No." Hadden shook his head. "This is something you have to handle. Consider it advanced training."

"I'll try to remember that."

"Try something else, too," said Hadden. "Remember who you are. And remember what you are." He took one of her hands and held it up before her. It was shimmering, silver and bright.

The next day Amy's eye had healed somewhat, and she was smiling freely again. Lauri, who had paperwork to do, took time out now and again to watch her. Something had indeed changed about the blonde woman, but it was subtle enough to be detected only by Elven eyes. Lauri was fairly sure that Amy herself was not yet aware of it.

After work they went out to a Pizza Hut and chatted over a mushroom-and-pepperoni with extra cheese. Amy seemed open and cheerful, and laughed at Lauri's tales about her next-door neighbor and the billion-decibel rock and roll.

"What did you do, finally?" she asked.

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Lauri shook her hair back slightly. "I pitched him into the lake. Everyone laughed. He kept the volume down after that."

Amy giggled and nearly spilled her Coke. "You're tall enough . . . I didn't realize you were that strong."

"I've studied Tae Kwon Do for a few years. It comes in handy."

Amy set down her drink and looked at her as though for the first time. Her face was a mixture of awe, puzzlement, and a touch of fear. "You're very brave . . . to do that to a man."

Lauri laughed lightly, trying at the same time to read Amy's expression. "Amy, I'm a libber. Makes no difference."

For a moment Amy's thoughts seemed to turn inside herself. "Sure . . . I guess so," she said slowly. Lauri had the impression that another scenario was playing out in Amy's mind. "It must be interesting."

They were definitely an unmatched set: Amy in her Gunne Sax dress and impeccably applied makeup, her fingernails glinting a pale rose-pink; Lauri in denim and denim, her hair a black mop and face bare of any color except a suntan. Still, they could talk, and there was a bond between them of which only Lauri was conscious so far, a bond that was growing steadily. A week, maybe ten days, and Amy would be seeing stars behind her closed eyes. A little longer, and Lauri would have to figure out how to explain what was happening to her.

"How do you feel about the mountains?" Lauri asked. "You want to take a lunch up there this weekend?." She admitted to herself that it would be a definite novelty to see Amy in Levi's. Unless, of course, she wore calico and a bonnet on such trips.

"Well . . ." Amy seemed uncertain. "Rob . . . that's my boyfriend . . . usually likes me to stay home with him on weekends." She paused, staring at the ice melting in her drink. "But . . . but he's going out with some friends. I . . . I guess I could."

"You live with Rob?"

She did. And it turned out that they kept an apartment together only a few minutes from where Lauri had thrown her neighbor in the lake.

"Let's do it, then," said Lauri. "Get these pesky men out of the way for a while. He sits in front of the tube and watches sports all weekend, doesn't he?"

Amy giggled and nodded. She looked at her watch then, and gasped harshly. "Oh my God, I've gotta get home. Rob will—"

She caught herself. "Can we pay up?" she said quietly. "I'm going to be late."

Lauri looked at her for a few minutes, sizing her up. "I'll pick you up on Saturday," was all she said.

Amy seemed to be without problems the rest of the week, and her only mistake was a minor one regard-

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ing the admittedly simple filing system used at Treestar Surveying. Hadden caught it on Friday afternoon. "Don't worry," he said. "You can fix it on Monday."

Amy stammered an apology, which Hadden dismissed with a wave of his hand. Lauri gave her a nod. "See you tomorrow morning. Nine o'clock."

Amy smiled as she departed. "Bye." Her voice was soft, and the door swung to behind her.

"Tomorrow?" said Hadden.

"We're going up into the mountains for the day."

"Sounds like fun. Ash and I are going up to the Home. Why don't you drop in?"

Lauri watched as Amy's car turned out of the parking lot. "We'll be in that area," she said, "but it might be rushing things a little. Amy doesn't even know that Elves exist, much less that we're building a rec center. Of course, why should that bother her?"

"I wouldn't exactly call it a rec center," Hadden laughed. The afternoon sun caught the gray that frosted his dark hair and made it sparkle. "But you know these mortals . . . ."

"Mortals. Not for much longer." She glanced at the street, then at Hadden. "This may be rough."

"Hmmm. Did you find out about her black eye?"

"I think her boyfriend beat her up." There was a glint in her eye. "I think this wasn't the first time."

Hadden sat down in a vacant chair and rubbed his chin thoughtfully. The blood had taken his beard away, but the habit persisted. "It does explain some things." He looked sad. "There's a certain loyalty among Elves. If you're right, we may have to do something."

"*I* may have to do something." Lauri was aware that the starlight in her eyes was shining brightly, even dangerously.

Forty minutes outside of Denver, there was an odd little turnoff from Highway 6. Lauri turned her Bronco onto it, easing into low gear for the steep hill.

Amy watched the landscape crawl by. "I never noticed this exit before," she commented. "I've been out this way, too. Rob and I used to go out to Idaho Springs."

"It's hard to find unless you know just what you're looking for," Lauri said. "There's a nice place to picnic out here, though." The dirt road was rutted from stone and wood being hauled over it. Elvenhome of the Rockies was not yet finished, but when it was, the Elves would have a place of their own once more, the first in centuries. Lauri made a mental note to arrange for some smoothing — the area was starting to look too much as though there were construction going on.

The road wound into the mountains, rising and falling for twenty minutes or so until it descended and dead-ended in a flat parking area that

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had been freshly graveled.

"State park?" said Amy.

"Privately owned," Lauri answered. "I've got permission, though." She did not mention that she was also part owner.

There was one other vehicle there, and Lauri recognized it as Ash's Mercedes. She pulled in beside it and shut off the engine. There was a slight breeze that day, and it sang in the trees, the rustle of aspen blending with the sigh of pine. Amy stared through the open window at the surrounding trees and mountains.

A deep feeling of peace lay upon the land here, the chosen valley of the Elves, and Lauri got out and took off her shoes. Amy looked at her curiously. "You don't need them here," she explained. "This place is safe. There's nothing here that will hurt you."

Amy looked unbelieving, as though there were indeed no place in the universe like that, but she allowed Lauri to help her out of the car, and she even went so far as to take off her shoes. "I'll . . . take your word for it, Lauri."

"Sounds good." She reached into the back and picked up the picnic basket. "Let's walk. There are some nice meadows around here."

She offered her hand, and Amy, after hesitating, took it. Lauri recalled a time, four months before, when Ash had reached out to her. At the time, the action had seemed fraught with meaning, as though it would shape her entire life. And it had, for when she, after a moment, had grasped Ash's hand, that gentle woman had led her into another world, just as she herself was leading Amy now. The blood had awakened, and it could not be denied. But the trauma could be eased, and the uncertainty done away with. Healing. Comfort.

Amy moved stiffly, though not as if she were unused to walking. Rather, she seemed in pain. "You aren't well?" said Lauri.

"I'm O.K." She dropped her eyes and turned her head away.

Lauri sighed. "Come," she said quietly. "You can leave it behind you here."

Amy started, looked her full in the face, eyes deep blue now with the awakening of the blood, the shimmer a faint but distinct presence about her body. "What?"

She stared at Lauri, and the Elf knew that Amy was seeing the starlight. A sparrow hawk flew overhead, skimming by just over their heads. Amy looked up at it.

"It's the welcoming committee," laughed Lauri. "Come on!"

Their steps took them into the trees and along quiet paths where the moss and pine needles seemed especially soft, as though made for bare feet. Lauri padded silently. Amy stepped gingerly. Above their heads the sparrow hawk flitted from tree to tree, keeping pace with them, now

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and then peering down, head cocked to one side, curious.

They came to a meadow that sloped gently down to a stream that tumbled among stones. The sparrow hawk flicked out over it, circled, and with firm wing beats, mounted into the sky. Amy shaded her eyes, looking after it.

The grass was thick and soft, the sun warm and pleasant. Lauri spread the blanket while Amy wandered down to the water, then up along a crescent-shaped patch of white flowers. She seemed engrossed in them.

"Isn't this better than the tube all day?" Lauri called.

Amy turned around. She was holding one of the delicate blooms. The wind lifted her hair out and to the side, and though she was wearing designer jeans and a football jersey, she was, for that moment, timeless, as though this meadow and these flowers had always been visited by a young, fragile woman who knew what it meant to pick one and hold it before her in just this way, wondering at it.

"It's beautiful here," she said, and her voice carried softly to Lauri. And it seemed that she had left behind her what the Elf had hoped she would.

But at the same time, linked as they were in that moment, Lauri could sense the dark bruises that covered Amy's back, the reddened welts on her breasts, and she knew why the young woman had walked stiffly, as though in pain.

She dropped her gaze, staring for the moment at the blanket, letting her stars calm her, settle her. As much as leukemia had silently eaten Ash's neighbor, so did a different, less tangible ailment gnaw at Amy, silently, inexorably. And so, Lauri hoped, would it be dealt with by Elven hands.

"What's that, Lauri?" Amy was pointing above the treetops, where a tower was visible. It was white, with a roof of blue stone, and a silver filigree wound along just under the eaves.

"It's a house that's here."

"Who lives there?"

"It's sort of a communal-type place."

"That must be nice. It's pretty."

"I'll take you there sometime," said Lauri. "Nice people."

She opened the basket and began setting out the food. She had packed it herself — chicken salad, bread, wine, cheese — and while she was doing so, she had felt the sacredness of her task, as though this simple lunch were going to make all the difference in the world.

The sparrow hawk swooped down and alighted on her shoulder, then nuzzled at her ear. Lauri blushed. "Hey, come on, give me a break. You want the poor thing to freak?"

Amy was staring again. "How are you doing that?"

"Well, it's like this," said Lauri as she offered the hawk a piece of

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chicken. "Just like we're safe here, so are the animals. They know we wouldn't hurt them." The sparrow hawk gave up on her ear and took the chicken politely. "Don't I know you?" Lauri said to it. "Weren't you here the first time Hadden and Ash brought me up?" The bird eyed her wisely and busied itself with the chicken.

Amy wandered over and sat down, moving slowly, half in a trance. A deer bounded out of the forest and went straight to her, leading a fawn. The fawn curled up beside her and went to sleep. The mother looked on approvingly. Amy reached out and stroked the pale fur. "I don't understand any of this," she said. Her voice was hoarse, her eyes moist.

"Just take it for what it is," said Lauri. She let the starlight fill her, feeling the cool wash of energy expanding within her until it reached out and touched Amy, who relaxed and rubbed her eyes. Lauri let her rest.

Abruptly, and without warning, Amy broke down, eyes pressed tightly shut, hands going to her face to hide the tears. Lauri put her arms around her, thinking: *It's not supposed to hurt. Dear God, it's not supposed to hurt.*

Amy was oblivious of her arms, locked as she was in a personal and physical grief. Lauri had her own eyes shut, the stars a field of diamonds on black velvet. She could feel Amy choking and heaving in her arms, but she could feel more: the grief itself, the confusion, a contorted and twisting maze of dead ends. She forced herself to breathe evenly and deeply, sucking in the light and sending it into Amy, blanketing and cooling the pain. She did not attempt to extinguish it: to do so would have been to violate Amy's right to feel, to be herself. But she could take the edge off, temper it, give the freedom to find a way through it, provide the strength to maintain during the ordeal.

Amy's sobs grew less frequent, racked her body less. She had buried her face in Lauri's shoulder, hands clutched into fists with her emotion, but that was easing now, and eventually she quieted, her hands relaxed, and Lauri cradled her gently, letting her drift in peace.

"What am I seeing?" Amy said at last. "Are they stars?"

"They are."

"Inside me?"

"Some people have that talent," said the Elf. "This place tends to bring it out. Breathe slowly. Pretend you're breathing the starlight. Feel it inside you. Inhale, and feel the shimmer expand. Exhale, and feel it travel through your body."

Amy seemed to understand. She breathed, and a deep calm surrounded her. "Where am I?" she whispered.

"Inside yourself. There are places like this inside all of us. We just have to find them. You can come here for quiet, or . . . for strength . . . when you need it."

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After a minute Amy shifted and opened her eyes. She swallowed, licked her lips, kept her gaze on the ground. The fawn, still beside her, looked at her contentedly. The doe watched.

"Rob likes to beat you up, doesn't he?" Lauri said.

Amy would not look at her. "I make him nervous," she said. "I twitch. He doesn't like that."

"I don't think that gives him the right to hit you."

"It's my fault. He works hard — he's in construction — and he's tired when he gets home. He needs to rest . . . and I get in the way. He gets so angry at me. . . ."

"And he drinks, doesn't he?" Lauri was surprised at her certainty. "So he knocks you around." *Damn human. . . .*

"I should learn how to deal with him." She had not lifted her eyes from the blanket. Her blonde hair, damp with her tears, straggled down on either side of her face.

"Why the hell do you stay?"

Amy at last looked at her. "I need him. I love him," she said, as if that explained it all.

I couldn't love anyone that much, Lauri thought. Aloud, she said: "And does he love you?"

Amy looked baffled. "Of course he loves me."

It was Lauri's turn to stare.

The next day was a Sunday, and Lauri was crawling across the blue slate roof of Elvenhome to caulk the flashing around the chimney. The slope was not great, but the stone was slippery, and she was not used to heights. She held the stars in her mind to keep her acrophobia at bay.

She reached the chimney and straddled the ridge. At her eye level, she could see trees in most directions, pines and aspen, her view level with the tops or higher. Beyond the trees were the mountains, clear and sharp against the unspeakably blue sky. Below her, beyond the eaves of the house, was the ground, forty feet down. She tried not to think about that. It was even preferable to think about Amy.

They had finished their picnic on a better note, and Amy had been laughing again when Lauri had dropped her off.

"See you on Monday," Amy had said. "And I'd like to go back up there someday."

"Don't worry: I'll take you."

Lauri recalled watching the faint nimbus that now surrounded Amy flicker and change. Any was probably not yet conscious of it herself, but she had further to go before the blood would begin to manifest directly for her. Now she could see the stars with Lauri's help. Soon, they would be with her always.

But those bruises. Those damned bruises. . . .

Her hands tightened on the caulking gun. Her own attitude toward men

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had always been one of indifference. She had been gay for as long as she had known that there was something more between people than talking, and men had never played a more significant part in her life than as friends or as coworkers. She had, it seemed, forgotten about those kinds of love in which physical power played a part. The affair in Los Angeles that had blown up and propelled her to Denver had been a maelstrom of conflicting emotions and psychological games. It had taken her months to sort through her feelings enough to reach a resolution. And there had been no male-female dominance problems there. Amy, she considered as she crawled back across the roof to the ladder, was enmeshed deeply enough in socially approved behavior patterns that she probably had no idea there was a way out at all.

And those bruises, those welts. They made Lauri's blood boil, and they made her feel helpless. How could she reach out to Amy, separated as they were by an abyss of conditioning, sexuality, and life-style, of which Amy's studied polish and femininity were only surface indications? What could starlight do against a raised fist?

She missed her footing, and the caulking gun went flying, clattering down the roof and off into the air as she scrambled for a hold. The slate offered little, and she slid toward the edge, duplicating on a larger scale the path of the caulking gun. She heard it hit the ground, a harsh clank, probably on the walkway, and she hoped it hadn't cracked any of the tiles — and dammit, where the hell was a hold on this slate. . . ?

Her body was off the edge before her fingers closed on the rain gutter and tightened. She was strong, and her reflexes were good, thanks to her martial arts training, and though she dangled in the air, she felt confident that she could pull herself up. If the gutter did not give way.

It creaked, a masonry nail two feet from her deciding that it was not up to the load.

"Lauri," she heard from below her. "Are you—? Shit!"

I'm not going to look down, she thought. She placed the voice finally as belonging to Wheat, and recalled, her mind pursuing with maddening efficiency her previous train of thought, that Wheat had been Amy's employment counselor.

The nail was petulantly continuing to yield. The gutter creaked even more. Climbing back onto the roof was out of the question: the movement would cause the nail to give way, and would probably pull out the entire section of gutter.

Lauri heard Wheat shouting for Hadden and Web. She forced herself to stay calm, found her stars.

The gutter creaked. It was not going to hold. She could feel it sagging, could imagine what a forty-foot drop

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would do to her. She stared at the nail, willing it to hold, seeing it through a haze of starlight.

The gutter inched down.

"Hang on, Lauri!" It was Ash. Well, Lauri reflected, in about half a minute she was probably going to need a healer.

That damned nail. In her mind, a blue star was blazing directly in her line of sight, the nail eclipsed by its brilliance.

Hold. Dammit. Hold.

She suddenly felt the ladder under her feet, felt it stabilize until she could put her weight on it. "Got it?" called Wheat.

"Yeah," she shouted back. "Lemme rest for a minute."

As she caught her breath, she glanced at the nail and noticed that it looked as though it had been melted, fused with the gutter and with the stone behind it. Remembering the star she had seen, she swallowed, and inched down the ladder.

Hadden, Wheat, and Web all grabbed her when she came within reach, and they bore her bodily over to a bench under the large aspen tree that grew in the front courtyard. Ash pressed a cup of cold wine into her hand and made her drink a little. The slight woman's blue-gray eyes were shining, and Lauri could feel the calm that radiated from her. "Find your stars, love," said Ash.

"I've got them," Lauri panted, half from fright, half from the sight of the melted gutter. Power. . . . "I'm all right."

Hadden had his arm around her. "What happened?"

"I was coming down and I got sloppy. I was thinking about Amy."

"How did it go yesterday?"

"We talked. The animals accepted her, no problem. She told me her fella beats her. She thinks it's her fault."

Ash nodded slowly, sat back on her heels. "That is common."

Lauri blinked at her tone. "You know about things like this?"

The slender woman seemed to turn her sight inward. The starlight in her eyes flickered. "I was married years ago, and divorced. There . . . were reasons."

"And you blamed yourself for it all?"

Ash shrugged. "We grow up that way sometimes. I finally realized that nothing I did rated a beating from another human being. I ran. Eventually he stopped trying to get back at me."

"Get back at you?"

"I ran away. I had to be punished."

Hadden rubbed at his nonexistent beard. "And Amy? The blood isn't going to wait. This is going to come to a head fairly soon. We should be ready. We have . . . responsibilities."

Lauri looked up at him, sipped at the wine. "Don't rub it in."

"I'm not. We're all in this together."

"She can stay here," Ash said suddenly. "One wing is finished, and the

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water and lights are working. We can put her up until the man gets tired."

"Then what?" Lauri felt the power that Ash wielded.

Ash smiled quietly. "Then she is on her own; to stay or go as she wishes. She will be a kinswoman."

It rained heavily most of the next week, autumn wetness presaging the coming winter. Flooded streets mirrored the slate gray of cloudy skies, dirt lots turned into swamps, construction halted, and at Treestar Surveying, fieldwork was suspended. Lauri had paperwork to keep her busy at the office, but she occasionally took time to check on Amy, and Hadden did not begrudge her that leisure.

The woman was changing. It was obvious enough now that even Amy had noticed, though it was just as obvious that she did not know what to make of it. She moved with ease and grace through the office, and if she smiled, she smiled without nervousness or appeasement. Her mistakes dwindled. A potted plant appeared on her desk. There was a glimmer, as of starlight, in her eyes. On Friday afternoon Lauri caught her looking in wonder at her hands.

"How's it going, Amy?" she said as she passed by.

Amy was still staring at her hands. "Fine. . . ." Her voice trailed off thoughtfully, then she caught herself and looked up at Lauri. "I think I might need glasses."

"Is my handwriting giving you problems?"

"Honestly," she giggled. "I look like I'm glowing."

"Hmmm. Maybe you are. Have you thought of that?"

Amy shrugged and shook her head. "I wouldn't be surprised, with all the other crazy things going on."

Lauri sat on the corner of her desk. "Crazy things?"

Amy looked up, and the light flashed. "It's like when we were up in the mountains last weekend. I can see stars when I sleep. And I think I see them when I'm awake." She blinked. "Am I going nuts?"

"No more than anyone else around here." Lauri was conscious that Hadden was watching her. "How do you feel about it . . . other than going nuts, I mean?"

Amy gazed out the window, out onto the small lawn with the apple trees that adjoined the building. "I was sitting in the park today . . . eating my lunch. I wasn't paying attention to anything, but a bird — I think it was a robin — came and sat on my shoulder. It . . . it let me pet it." She looked at Lauri. "It really seemed glad that I was there. It wasn't just begging for a handout. Then a squirrel curled up in my lap. Just like the fawn did. A-and I feel like . . . like I'm them and they're me. I don't know what to think, what to feel. . . ."

"Are you frightened?"

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"No."

Lauri sat back a little on the desk. Her gaze swung up and met with Hadden's, and she could tell what he was thinking. Getting close. Better say something so it's not too much of a shock. Healing and comfort.

She ran a hand through her black hair, brushing past an ear. The change was profound. She was twenty-nine, but looked ten years younger than that, and she had a suspicion that the set of her cheekbones and face had altered slightly to make the ears fit in better, so that she looked all of a piece when she tied her hair back and danced in the firelight up at Elvenhome.

She checked Amy. Physical changes? Not yet. Soon, though. Very soon.

"What do you know about Elves, Amy?" she said casually.

"Lord . . . we've got *them* around here, too?"

Lauri was conscious that Hadden had turned away, shaking with suppressed laughter. It was not fair. She had no idea what she was doing. "Well, who knows?"

"Don't they sit on mushrooms?"

"I'm not sure." Lauri was watching Hadden. "Maybe they smoke them." He did not turn around.

"What about Elves?"

"It's like they really existed," said Lauri, half-afraid that Amy would laugh. "Right along with humans. They disappeared as a race in the fourteenth century — seems like they intermarried. Everyone has some of the blood now. In some people, it's waking up. Aquarian Age or something like that." In her mind, among the stars, she heard Hadden's voice, very quietly, very calmly say, *Not bad.*

"Cute story," said Amy, who had gone back to staring at her hands. "Maybe I'm turning into one."

Lauri chuckled. "Maybe."

"What happened to make them disappear? Wasn't the Black Death in the fourteenth century?" Lauri looked at her, and she shrugged. "I majored in history."

"Yeah . . . O.K. . . . uh . . ." She rubbed the side of her face. "I don't think it was the plague. I think it was persecution."

"That wasn't a good time back then."

Lauri was looking at Amy's back, where the dark bruises under her clothing were just beginning to heal.

Persecution. She thought about it on the way home that night, passing through the rich neighborhoods that lay like a broad avenue of money on either side of University Boulevard. She wondered what it had been like to be an Elf in 1350. In one way she could see Amy's bruises as only a symptom of her society and her age, the brutalization of woman by man that made her glad she stood apart from ordinary relations. But in another — and here she was stretching back in time, wondering — she could

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see it as a further episode in the story of what had become her people. Piled on top of her anger at the wounding of a woman was her outrage at the thought of this . . . this *human* . . . striking an Elf.

The thought of the gutter at Elvenhome, fused with the masonry behind it, came back to her. If she, four months an Elf, could wield power like that, what, then, could one born to the race do? And why, in that medieval age of intolerance, inquisition, and burning, had that not been done? What held her forebears back from reaching out among the stars and throwing greater-than-human energies at those who persecuted them? Was the power valid? Or did it fail in time of need? What good was power if it could not save your race? What good was it if it could not even save one fragile woman from a beating?

She pulled into her parking space, switched off, and sat for a while, staring at the brick wall in front of her as the rain pattered on the roof and the engine ticked away its heat. She was still helpless. Much as she wanted to reach out to Amy, drag her away from the man who abused her, the action was not hers to take. Amy had to do it herself, or not at all. Maybe . . . maybe she even *liked* it.

Lauri got out and strode into the complex as though stalking some evil destiny.

In the middle of the group of buildings was a small lake, more like a pond. Nearly a year ago, when she had arrived in Denver, it had been the main reason she had taken an apartment where she had. Now, looking for peace, she went down to the water's edge and watched the ripples left by the ducks, the splash of a surfacing carp, the flicker of a school of minnows. She let the starlight take her then, and she merged with them all, felt the flow of life around her. She was the water, the duck, the carp, the minnow. . . .

The rain pattered down, soaking her hair. She relaxed slowly, contemplated the firmament within her.

Somewhere, out among the stars, she could have found the sky that belonged to Amy, could have linked with her, seen with her eyes, spoken quietly with her in her mind. Not now. The action would have been intrusive to begin with, and would have terrified the woman in any case. Healing and comfort . . . but how to heal without touching, and how to comfort when an abyss separated them?

That night: Lauri alone in her bed, staring at the ceiling, half-floated among the stars. She could spend the hours of darkness pondering like this and rise in the morning rested and refreshed. Somewhere, in those quiet spaces within herself, she was sure she could find understanding, and if not the answers, at least acceptance.

But both were elusive, and she drove out to Elvenhome the next day with a sense of oppression. The sky

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was like slate, gaps in the overcast giving only upon the outlines of towering thunderheads that did no more than point up her worry.

There was a radiophone at the Home, and Lauri transferred her calls to that number. She spent the day putting in the parquetry floor in the dining hall, one ear cocked for the buzzer. But the phone was silent. Ash was upstairs with Hadden laying carpet. They met over sack lunches under the trees.

"Do you feel it?" said Lauri. She did not specify. She did not have to.

Ash, in the middle of an apple, nodded. "I do. I'll make sure a bedroom is ready."

"She won't come . . . she loves him . . . she thinks he loves her."

"Who can say?" murmured the healer.

"How are you at broken bones, Ash?"

"I can try."

Evening again, and night. Lauri stayed up at the Home, sleeping bag unrolled under the trees, physical stars blending with those in her eyes. The overcast had departed, skies were cold and clear, and the trees seemed to whisper to one another, telling stories about the old times, the starlight, and about the Elves and their return. She wondered how her people had lived before . . . before the Loss. The historians were silent, and racial memory gave her only vague and obscure images of firelight in peaceful clearings, warm embraces, and soft words. And the stars. Always the stars.

There was something infinitely precious there, something worth fighting and dying for: that peace, that feeling of wholeness and of completion, and of oneness. Elf, woman . . . something worth dying for. . . .

And she wondered then if that was not exactly what had happened. Persecution, intermarriage, and the blood had been spread throughout humankind, slumbering for the time, for the centuries, but waiting to awaken, to transform, to bring something precious to everyone — Human, Elf, one transformed into the other with a vision of starlight, a feeling of completion, a fighting through storms and strife to azure sky and blue water. Amy was finding her way now, and her path was dangerous and painful; but somehow, Lauri now felt sure, she was going to make it all the way; and the skies, the stars, the trees and stones would be hers. As could be the case for everyone. Even . . . even Rob. . . .

She had drifted far and long within herself when the darkness among her stars suddenly flamed red, blinding her, driving her through jagged spaces. She looked through holes in the sky into emptiness, and she woke up screaming, clawing at the sleeping bag as though it were devouring her, hands clutching at the cloth, at the air. Somewhere inside her an abyss had opened up and was pulling her

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stars into it, spiraling them into its maw, tugging at her mind. . . .

Trees . . . bending over her . . . reaching. . .

. . . eyes. . . .

Far off, she heard someone calling her name, but the roaring in her ears was drowning it out. The abyss had grown, stars vanished into it, drained out of her consciousness.

She was still screaming. With her physical sight, she caught a glimpse of Ash's features, hovering ghostly as if in the moonlight, eyes gleaming, lips pressed together. Ash! Help! *Ai si circalle oulise, Ashi!*

She babbled in a language she did not know, but felt hands on her, soft but bright with power. Ash's voice rang within her: *I am here.*

Abruptly her fall ceased. The abyss still gaped, but the stars had halted. From out of the red sky came a dull muttering.

Hadden. Ash again. *I need help.*

Beloved.

Light wove around Lauri like a down comforter, calming her, easing her. She snuggled into it with a sigh, let it merge with her, fill her.

Breathe, Lauri. Gently.

Slow and steady, she told herself. Just like you did with Amy. She had a brief, compelling vision of a sparsely furnished room, of a dark form that lifted a greasy hand—

Lauri! Hold! Tiri, non le haithlene!

The words snapped her back to herself, and she searched among the stars for something to center herself with. A hot blue primary burned in her field of vision, and she concentrated on it, held on to it as she had held on to the gutter the week before.

The light poured down into the abyss, filled it, dragged the edges together, and bound it with a tracery of starlight, bound it forever. The red faded from her vision. The sky was once again a field of gems, safe and calm. She shuddered and went limp, her contorted muscles giving up their load of tension as one.

She opened her eyes and managed to focus on Ash and Hadden. "I . . . I don't know. . . ."

"Give yourself some time, love," said Ash. She passed a hand over Lauri's forehead, and strength came along with it.

Lauri worked her mouth soundlessly for a minute, then: "That came from Amy. We're linked. She's in trouble."

Her coordination was coming back quickly, and she stood up. She was unsteady at first, but her bare feet on the cold ground felt the life in the fertile earth, drank it in.

Inside the Home, the radiophone began to buzz. Lauri looked at Ash and Hadden for a moment as she figured out what it was, then ran for the door. She picked up the receiver just as the connection was broken with a loud pop.

"Amy? Amy!" Static. Only static. Dialing Amy's number brought noth-

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ing more than a ring . . . and no answer. Lauri slammed the handset down. "I'm going out there." Anger was pounding against her temples.

Hadden was already pulling on his Levi's. "We're going together."

Four in the morning: Lauri and Hadden in the Bronco, traveling full-bore down the twisting mountain road that led to Denver. Speed laws were things to be ignored. Time and Amy were all that counted.

The sky was lightening faintly, a just-perceptible hint that somewhere in the future there was a dawn, the beginning of a new day. Lauri did not slow down when she reached the city limits, and Hadden, sitting quietly beside her, did not comment.

The city streets forced her to cut her speed, but her hands were tight on the wheel as they rumbled into the apartment-cluttered residential area. She knew the way to Amy's building, but even if she had not, the dull oppression that glowed in the night like a hot iron would have guided her. She double-parked in front of the building and flicked on her emergency flashers.

"I'm going in," she said.

"Do you want help?" Hadden was speaking calmly. He had it down to an art.

"I want to do this alone."

"He may be there."

She shrugged and started to swing out of the doorway, but Hadden detained her with a hand on her arm. He was looking at her meaningfully. "Hey," she said. "It suits me fine."

"Healing and comfort?"

"What the hell are you talking about?"

"Rob has the blood just as much as Amy does. You know that. What do you intend to do to him?"

"That's not a fair question, dammit."

"You might think about it, nonetheless."

She jerked her arm out of his grasp and ran for the stairs. Two flights up, and down the walkway, and the hot oppression was burning her in the face.

She listened at the door. Silence, but the lights were on, and a bare bulb formed a bright spot where a lamp was leaning crazily against the venetian blinds.

She called into the spaces among the stars: *Amy!* Nothing. Not even an echo. Lifting a hand, she knocked, softly at first. Then, damning all, she pounded.

A minute or two went by before she heard a stirring. A white face, streaked with grime and blood, peered out at her from between the blinds. Lauri had a feeling that it was Amy, but she could not be sure, and when the door finally opened and she got a good look at the woman who stood before her in a torn nightshirt, she still could not be sure. The fact

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was, it had to be Amy, but the blood, the bruises — and more than either, the dull, lightless eyes — made Lauri hesitate.

"Hello . . . Lauri . . ." The woman's voice was mechanical, flat. It was as though a corpse spoke.

"Amy. . . ."

She stepped back into the room, leaving the door open. "You might as well come in. I won't be sleeping for a while."

The shimmer, the glow, the health . . . everything was gone. Lauri cast about among the stars, searching for something in the woman to link with, but found nothing.

She entered and shut the door behind her. The apartment was a wreck: papers, dishes, and furniture scattered as if tossed by a storm. She picked her way over pieces of a broken telephone until she stood behind Amy, who did not turn around. "Where's Rob?" she demanded.

"Out." Amy's voice was listless, empty.

"What the hell did he do to you?" Physically, it was obvious, but that was not what she was asking.

Amy turned around. Lauri might as well have looked into empty sockets for all the life that was in her eyes. "I got sick," she said simply. "I was seeing stars. Rob got mad."

Trembling, Lauri reached out and took her gently by the shoulders. "So what did he do, Amy?" she whispered. "Try to beat it out of you?"

"I'm better now. . . ."

Lauri nearly screamed in rage. Blood was still seeping from a cut in Amy's forehead, and most of her face was bruised and swollen. But the eyes . . . like two pits that gave onto emptiness. And beyond it all, oppression radiated from the woman.

Her stars wavered, and she saw, in the distance, the abyss that had taken Amy away from herself. *Hadden! Ash!*

Amy started to shake, and she pulled away from Lauri. "You better go. Rob'll be back any time now. He went to get some beer."

"So he can come back and finish you off? I'll be damned."

"He's got a gun, Lauri. You better go." Amy was leaning on the kitchen counter, the Formica top stained with coffee and the dregs of a catsup bottle. She was shaking. "I . . . I . . . wanna . . . I can't . . . uh . . . uh. . . ."

The abyss yawned. Lauri suddenly realized that, not content with sucking down Amy's stars, it was going to take the rest of her, too. Rob had done his work too well. He had attempted to beat the Elven blood out of Amy, and had succeeded in turning her into a husk. She might even die, though not from physical wounds.

Amy was slipping, and she lost her grip on the counter and dropped to the floor, banging her head on an overturned table. Lauri was beside her instantly, cradling her head, calling her.

The abyss widened. Elf and wom-

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an. Healing and comfort.

She reached out among the stars, searching for the hot blue star she had seen before. Power, she needed power. She sensed that Amy was far ahead, well into the pit that had opened within her. It was dark in there, dark and cold, and Lauri shuddered at the thought of following.

Healing and comfort. . . .

She held on to the vision of the blue star, let its light fill her, inundate her as she, in her mind, lowered herself along the path that Amy had taken. As she did, she saw through Amy's eyes, lived through that last, final beating, felt the rejection that had welled up within the woman. The blood, it seemed, could indeed be denied, but only at the cost of denying one's life.

Cold, darkness. *Amy!* The blue star fed her, strengthened her, allowed her to control her fall. It blazed far above her like an electric arc, tingling through her, blasting ahead into the endless night, splitting the darkness as the high beams of her truck had split the pitch of the mountain roads.

Amy!

Faintly, a whisper in the void, she heard a reply. It was not even coherent, not even a word. A sigh, maybe. Maybe a whimper. But it was something. Lauri was well into the abyss now, the stars infinitely far away, and she searched for whatever intangible thing it was that was Amy.

Again the sigh, but fainter now. Lauri searched. Somewhere . . . she had to be somewhere.

The blue star was barely a glimmer on the edge of sight when she felt something, knew it to be Amy, grabbed it.

Amii! Circalle me!

It was as though arms were thrown around her neck then, a head pressed to hers. *Lauri . . . I'm scared.*

She nearly laughed. Amy's fear could not have equalled one-tenth the sheer, untainted panic that she herself felt. The blue star was nearly eclipsed by distance, the abyss was all around her, and she was somewhere inside and yet outside of herself. She had no idea what to do, and the life of another was in her hands. *I'm scared*: the words did not even faintly fill the requirements of the situation.

She tried to rise, got nowhere, redoubled her grip on the star. Panic started to rise, and Amy's trust was all that allowed her to fight it down.

Hadden! Ash!

The blue star flickered, and then she saw another night sky around her. It was not hers — she knew that she was still in the abyss — but she understood that the others were with her now, and the stellar fire of immense suns shone on her, yellow, blue, gold, green. The incandescence coursed through her, funneled itself into Amy, grew in intensity around the two of them. . . .

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Until she felt herself rising.

Amy was still with her, and Lauri et the light flow into the emptiness hat was there. Amy drank it in. *Lau-i . . .*

You're O.K. Just breathe the light.

Amy was like an abyss herself. There was a hunger there, a void, a earning for something feared lost. auri felt as though she were spoon-ng meat into the mouth of a starving child.

They continued to rise.

Breathe, Amy.

More light. Lauri's own stars shone round them now. She recognized hem, was sure of them, searched for Amy's. They had to be somewhere. Rob had beaten them out of her, but hey could return. Lauri believed that. t had to be so. Below, the abyss filled, webs of light tightening over it, pull-ng the edges together. Amy gasped hen, and with a whisper as of a breath of wind, Lauri's stars were joined by thers, and they shone mightily.

For several minutes they drifted ogether, holding one another in mind nd in body, Lauri resting, Amy, she ould tell, changing, catching up on ost time.

"It's beautiful," she said, or maybe hey said it together. Lauri could not e sure. She thought she detected a lurring, though, as of swollen lips, nd she pried her eyes open and ooked into Amy's battered face. In-ongruously, Amy was smiling, in pite of the bruises and the blood.

"What is it, Lauri? What do the stars mean?"

"It means, love. . . ." She looked into eyes that were, once again, filled with light, stared at flesh that was suffused with a delicate shimmer. "It means that you're an Elf. You have this blood I was talking about. It woke up. It's changing you."

Amy closed her eyes and sighed. "Rob asked me what was going on, and I told him about the stars. He got mad."

"How . . . how do you feel about that?"

"I just want the stars. I tried to tell him that, but he didn't like it. He started hitting me. He didn't care about the stars . . . or about me. I . . . I don't think he ever did." She opened her eyes. "I want the stars," she said fiercely. "I won't let him take them away again."

Lauri heard the door open. "Hadden?"

Amy's eyes widened in fear. Lauri turned around and saw Rob there, framed by the doorway, his T-shirt greasy and his jeans stained with what she assumed was Amy's blood. He was holding a six-pack in his hand and was staring at Lauri.

"What the—" He started forward, his face red. Lauri rose and set herself between him and Amy.

"She's a friend of mine, Rob." Amy's voice was husky. "Leave her alone."

"What the hell's she doing here?" he demanded.

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"She . . ."

Lauri wanted no delays. "I came here to save Amy's life after you nearly beat her to death." Her hands were slightly away from her sides, and she was already sizing Rob up as an opponent. Just like sparring practice at the dojo. "I'm going to get her out of here, too."

"The hell you are."

"Rob . . ." There was a plaintive tone in Amy's voice, but she caught herself. Lauri heard her slowly getting to her feet. "You really hurt me, Rob." It was a statement of fact. There was no pleading or apology in it.

"What did you expect? You made me so goddamn mad. All that shit about stars. What are you trying to do to me?"

"I'm not trying to do anything to you," said Amy slowly. "I just want out."

Rob eyed Lauri, who had dropped into a guard stance. "Cute," he said. "Real cute. You can't take me, bitch."

The words were designed to anger her, but Lauri had her stars, and the light leached away the emotion. She was calm, centered. She had a job to do.

Rob lunged, coming at her, swinging the six-pack like a club. He was fast, but Lauri was ready for it. She ducked, allowed the momentum and the weight of the beer cans to spin him half around, then drove in.

A kick sent the cans flying, and she whirled Rob back as though he were a sack of cabbages. She smashed an open hand full into his face, and he went down heavily and lay still.

She turned around to face Amy. The small woman was staring at the inert body. "You didn't . . ."

"He's just out, Amy," she said, half-surprised that she was not even breathing hard. "He'll be O.K. Sorry about that."

Amy looked dazedly about the room.

"Get your things together, love," said Lauri. "Clothes, personals . . . whatever."

"Where are we going?"

"Someplace safe. We're going home. Up in the mountains. Where we were before."

Amy did not have much, and in five minutes she was dressed and had filled a duffel bag. When they came back out into the living room, Rob was gone. Lauri was startled: she had expected the combination of alcohol and her blow to have kept him unconscious for several hours.

"What are we going to do?" Amy was looking at the place where Rob had been.

"We move, Amy."

"Lauri, he's got a gun in his car."

The gun. Amy had mentioned it before, but Lauri had forgotten. She kept to her stars. "Then we move faster, Amy. Come on."

They got down the stairs and out to the street without incident, Lauri

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carrying the duffel bag and, partially, Amy. Their progress was slow, but the truck was still there, still double-parked, and Hadden climbed out to help Amy in.

"Hadden," she gasped. "You?"

"To be sure," he said softly, buckling her seat belt. "Be at peace."

Lauri threw the bag into the back and swung behind the wheel. "I had to fight him, Hadden," she explained as he was getting in. "I put him out, but he came to and took off. Amy thinks he's going for a gun."

"We'd better get out of here."

"Right." The tires screeched a little as she pulled out, and she wove through the back streets as fast as she dared with the pale light of early dawn now streaking the sky distinctly. Streetlights began to dim, buildings emerged as forms of gray and pastel. The clouds had departed: the sky that day would be of deepest sapphire.

Traffic was still thin. Lauri reached Highway 6 and overtopped the speed limit as much as she dared. The urgency was not so great now, but she wanted to get Amy into Ash's hands. She stole a glance at her. Amy was curled up in the seat, dozing. The shimmer around her was bright, distinct, and even among the grime and the bruises, Lauri could see that her face was softening, lines of worry and pain vanishing as the blood worked.

They were just entering the foothills when Hadden spoke up. "Lauri, there's a car back here that's following us, I think."

She looked in her mirror and found it. A red Mustang was in their lane, tailing a little too closely.

"He's been with us at least since we got onto 6," said Hadden. "Always our lane."

"I think I noticed him a ways before that. I didn't think too much about it."

"Rob?"

"Probably." Her voice was flat. She remembered the gun. "I'm still going up to the Home. He'll be on our turf."

"No argument."

The Mustang stayed with them, winding through the hills that quickly changed into mountains. Lauri put on some speed, hoping to lose it among the turns, but the red car accelerated also, staying with them. Peering into her mirror, Lauri thought she recognized Rob's features behind the wheel.

Amy awoke, looked back, screamed faintly. "It's him."

"O.K." Lauri upped her speed a little more. If she could make the turnoff to Elvenhome quickly enough, with enough of a lead on Rob, he might miss it entirely and continue on out toward Idaho Springs.

"Lauri, you don't understand. When he's mad, he doesn't think. He's liable to try to kill you."

"He's going to find that I'll argue with him." She tried to sound confident, but the thought of guns and

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bullets made her shiver.

"Hold on to the stars, Lauri," said Hadden. "And you, too, Amy. You're one of us now." Lauri saw him in the mirror. He was very calm, and the light was in his eyes. He looked at her. "There are some things worth taking risks for."

The last quarter mile to the turnoff was abominably straight, and as Lauri spun up the steep slope, she knew that Rob had seen and would follow. She gunned the Bronco, jouncing over the ruts and potholes that had not been filled in yet, taking the dirt road overly fast.

"When we get up there," she shouted above the engine noise, "you take Amy up to Ash, and I'll deal with Rob."

"What do you intend to do?"

"Jump him. I'm an Elf. I should be able to sneak up on him."

"Lauri, don't." Amy was terrified. "Just let me go back to him. He'll leave you alone then."

"Amy, do you *want* to go back to him?"

She hesitated, looking first at Lauri, then at the pursuing red car, just now appearing around a curve. Lauri felt the struggle. Starlight. Finally: "No. I don't."

"Then you don't have to. Hadden, you might warn Ash that there's going to be trouble."

"She knows."

The parking area came into view as they crested the last hill. The fresh gravel was glowing in the morning sunlight. The sparrow hawk flashed across the open space. Lauri floored the accelerator down the slope and skidded to a halt at the edge of the gravel closest to the path. "Everyone out," she yelled. "Leave the bag."

Hadden was already helping Amy down. The Mustang was at the top of the hill. Lauri judged distances, times.

"We can make it to the trees if we run."

Amy was unsteady, and Hadden carried her. Rob was just pulling up when the trees closed around them. Glancing back, Lauri had enough time to see him get out, to see a bright flash of metal in his hand.

"Move!"

They knew the paths, Rob did not, and they wound among the trees. The valley seemed alive, as though it had awakened with the morning sun to find an intruder in the chosen place of the Elves.

They reached the meadow. Beyond, projecting above the trees, was the white tower with the blue roof. "Go ahead, Hadden," said Lauri. "I'll wait for him here. I'm not letting him near the Home."

Hadden nodded and started across the clearing, still carrying Amy. Lauri heard a crashing of heavy boots on the path behind her. She got behind a pine tree and waited.

Hadden continued across the meadow. He was almost to the cover of the trees. Rob was coming on, mak-

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ing better time than Lauri had expected.

Then the man was there, passing just on the other side of the pine. Lauri moved, springing, timing her lunge. She crashed into Rob, knocking him down, but the hour's drive had given him time to sober up, and he reacted quickly, swinging the gun into the side of her head.

Stunned, she rolled over on her side, fighting for clarity, fighting for the stars. Rob was already on his feet, taking aim at Hadden and Amy. Lauri struggled with muscles that were not cooperating with her.

The gun gleamed, a cheap nickel-plated .22. As Lauri crawled to her knees, fighting with herself, she heard three shots. They sounded absurdly trivial in the open air, but she looked up in time to see Hadden go down, falling half on top of Amy. Rob turned to her, leveled the gun. It was only a .22, but panic was creeping on Lauri: people were killed all the time with .22s.

Her coordination was still off. She tried to move, could not. The stars burned at her, and she saw the blue one again, blazing. She grabbed for it.

She saw Rob's finger start to tighten. He was taking his time.

There was a blur. The sparrow hawk swept down, streaked across the clearing, and buried its small talons in Rob's wrist with an audible smack. The shot went wide, kicking scraps of bark out of the pine tree.

In Lauri's mind, the blue star exploded into light, snapping nerves, muscles, thoughts into line. Rob was cursing, knocking the hawk aside, blood dripping from his wrist. The hawk fluttered, swept up and away, and Rob turned to Lauri once again.

She was seeing him through the blue-white incandescence, the light filling her, expanding swiftly, and suddenly lancing out at the man before her in a glowing pressure wave of energy. Rob reeled, and was thrown back as the light struck him, blinded him, rolled him over and over in the grass.

She let him lie, went into the quiet spaces among the stars, and found that Hadden had been hit in the leg, that Ash was on her way. Lauri's thoughts were calm, even, the star still shining within her. She could feel Hadden's leg, bleeding, the thighbone shattered. There were things worth dying for. There were things worth preserving at all costs. She heard Hadden's voice: *Finish with Rob. I can wait for Ash.*

Methodically she got to her feet, picked up the gun, emptied it, and threw it away. Nearby, Rob was struggling, unable to rise.

Dropping to one knee beside him, she rolled him faceup and grabbed the front of his shirt. His eyes were glazed, but he recognized her and stared in fear.

Very deliberately, she shook her hair away from her ears, let the stars

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inside her blaze until she was sure that he could see the shimmer around her and in her eyes. "You've come to the wrong place, man," she said.

He was stiff, rigid.

"You're not going to come here again, are you?"

Silence. He was unmoving.

"*Are you?*" She shook him, the starlight lending her strength.

"N-no. I swear."

"Human oaths mean nothing here. I'll give you a reason better than an oath." Her eyes bored into his, and, in the same way that she had grabbed Amy in the abyss, she seized him and dragged him within himself. She rent the fabric of his existence and showed him the awful emptiness. He writhed in her grasp, but she held him, forced him to look. When he started to whimper, she pulled him back, sealed the rent, returned him to himself. "Know this, man," she hissed into his face, "that's where you put Amy. That's where you left her. What do you think I ought to do with you?"

He babbled. "Please . . lemme go."

"If you ever come here again, if you ever bother Amy or any of my people again, that's where you're going back to. Forever. You can rot there for all I give a damn."

"O.K., O.K." He was hyperventilating, gasping for air as though he were not sure that the world of sky and sunlight would not be taken away from him at any moment. Looking into him, Lauri saw fear, knew that he would do as she wanted. But she saw something else, too: dimly, faintly, she saw the potential for the starlight to take him. Even Rob. And who knew when it might happen? And would her contact with him not contribute to the eventual awakening of his blood?

She let go of his shirt, and he fell back. She stood up, feeling slightly ill. Even Rob, someday, might see the stars. Even Rob could find completion and rest. She would have to check on him. Responsibility. When the blood awoke, he would need help, more than anyone else.

For now, he was terrified. She looked down at him. "Get out. Go." He crawled to the trees, stood up shakily, and half-ran, half-stumbled back toward his car.

Without looking at him again, she turned and walked slowly to the others. Ash was already there, and she had been working: Hadden was on his feet now, his leg sound, and he was watching as she laid her hands on Amy. Lauri felt the energy, felt the surge of strength as Amy blossomed.

Hadden gave Amy a hand, and helped her to her feet. Her face was clear, dirty but unbruised, and there was no trace of a cut. There was a soft shimmer around her, and her eyes were bright. The tip of an ear poked out from her disheveled hair, and Lauri noticed that her cheekbones had changed, making the ears fit bet-

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ter, making her all of a piece. Amy smiled at Lauri, the morning sun golden on her skin. "Be . . ." She hesitated, looking for the words. "Be at peace."

"Welcome home," Lauri said thickly. She heard an engine start up in the distance. The sparrow hawk flitted over, dipped its wings, and rose into the sky, into the clear light, toward Elvenhome.

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Robert Grossbach is a novelist whose most recent book, EASY AND HARD WAYS OUT, was made into the Eddie Murphy movie BEST DEFENSE. Mr. Grossbach is also a man with a penchant for huge and outlandish concepts, as demonstrated in . . .

Rift

BY

ROBERT GROSSBACH

The popular press likes to say that civilization will have ended because Ramstar Petroleum refused to grant André Vachon one extra day's vacation. Of course, this is exaggeration to the point of lie, dramatization to the point of farce.

In the first place, civilization may not end at all; scientific opinion is still vehemently divided. In the second place, it's very likely Vachon would've done what he did quite apart from that final organizational rebuff. And believe me, I'm the one to know.

We were in the North Atlantic Ocean, south of the Westman Islands, off Iceland. The vessel was the *Explorer IV*, the well-known Ramstar research ship, and we were taking cores from the Mid-Atlantic Rift. *Why?* and *Why there?* are complicated technical questions; suffice to say that in pursuit of profit, the oil companies do a surprising amount of rather basic oceanographic research. Besides, I myself am a phytogeographer — I study the distribution of plants in the past and present — a specialty that affords me minuscule knowledge, little respect, and less influence in the determination of corporate motivation. Like Vachon, I was a peon amongst the scientific and managerial aristocracy of Ramstar Petroleum.

The first indication we had of something happening was the elevation in seawater temperature. In a space of minutes, it rose from 7° *to* 9.4°C. The silicic acid dissolved in the water soared to nearly triple the normal concentration.

"Get the *Charlene* ready," Ayers told Vachon and me. "I think this'll be worth a look."

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"But why?" said Vachon, as he peered paranoically out of his beige slipover, craning his neck upward at the taller, handsomer Ayers.

"Andy, you *know* why," said Ayers in his usual majestic way. As assistant to Reedy, the chief geologist, Ayers was second in the scientific chain of command.

"But this ees not my field," protested Vachon. "And then, always, I must make the report. I am drowning in paper!"

"Couldn't you say 'buried'?" I offered.

Ayers smiled condescendingly. Vachon stalked off. An hour later, confirming word came from the Reykjavik seismic station: There had been a rather large undersea quake centered less than two miles from our present position. Ninety minutes after that, Vachon and I were hurtling at three feet per second down into the ocean depths, huddled like experimental animals in the cramped and chilled confines of the *Charlene.*

The light in the viewports grew steadily dimmer; as we dropped past twelve hundred feet, the blackness was total. Beads of moisture condensed on the walls of the pressure sphere.

"So," said Vachon, "now we relax, eh?" From his pocket he removed a small package of French butter cookies, offered me one. Everything Vachon ate or wrote or read was as French as possible; he disliked America that much.

"Screwed us again," I commented.

He shrugged. "Of course. And you know why?"

Rhetorical, to be sure.

"Because we were there," he continued. "This ees the prime principle of management. When they get ideas in their stupeed heads, the first one they see is the one they pick. They are like beasts in the field: Out of their sight, out of their consciousness." He chuckled in his rueful, accepting way, and I smiled.

Vachon and I liked each other, according to him because we both had "cheeps on our shouldairs." My chip manifested itself in a kind of cocky cavalierness, his by a more open and outspoken resentment. Outside, a school of lantern fish, flashing with bioluminescence, squirmed swiftly past the starboard viewport.

"You and Ayers are really on the outs," I noted.

Vachon tightened his thick lips. "All the time I ask heem, 'But why? Why must we go down? You 'ave instruments, you 'ave thees deep-towed camera that cost millions of dollairs, why do you bozzer us?' "

"Because it's in the rule book."

"Yes, because it's in hees stupeed book. Management writes the rules so the stockholders can nevair accuse them of missing somesing and giving anuzzer company some advantage."

"So they pick the two least valu-

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able guys on the ship to go down."

Vachon nodded. We were at twenty-nine hundred feet. The water temperature was six degree Celsius; the pressure, one hundred atmospheres. A dribble of water began around one of the cable lead-throughs. Vachon smiled. "You are worried?"

I shrugged. I'd seen such leaks a dozen times before; almost always, they were self-sealing. "Aren't you?"

"No." Said with that special quick, rising, French inflection. "I like catastrophes. I am a troublemaker." Deep snigger.

That, I guess, was the difference between Vachon and me. Both wise guys, but he was fifty-three years old, bitter, and (so he considered himself) washed up; I was twenty-two, and looked forward to a lot more living. Black water continued to rush up past us. Vachon released some ballast to slow our descent slightly, checked the silver-zinc batteries, fuel cells, motors, and sonar, then called topside on the acoustic telephone.

"Everytheeng is going according to plan," he said into the mike, adding in a whispered aside to me, "the plan being to waste ten thousand dollairs of company money and accomplish nussing."

"Have you picked up the ridge?" came Ayers's voice over the speaker. He was asking if we'd gotten a sonar echo from either of the twin peaks that bounded the narrow valley into which we sought to descend.

"Yes, David," said Vachon. "Anozzer three hundred feet, we be in the rift." He paused. " 'ave you spoken to Houston yet?"

"We sent the message," said Ayers, voice tinged with annoyance. "You know them, can't rush 'em."

"All right, David," said Vachon. He signed off.

The leak stopped. "What was that all about?" I asked. The sonar pings were becoming quite noisy. Vachon released some additional ballast and steered us gently into the fifteen-mile-wide groove from which our planet steadily disgorges its guts.

"In the spring I 'ave, you know, two weeks' vacation," said Vachon, "and I was planning a trip to France. My fazzer, he is an old man, I want to see heem one last time. But the only flights I could get, they are fifteen days apart, so I need one extra day."

I knew what was coming.

"So I ask Mr. David Ayers, 'Can I 'ave one extra day vacation?' "

"Of course not," I filled in. "You have to be at Ramstar ten years."

"I 'ave been eight. But you are right, he said no." Abruptly, he looked up. "Sometheeng is strange 'ere."

I watched as he glanced at several of the digital readouts. Vachon was an electrical engineer by profession, but over the years his natural curiosity had led him to become reasonably versed in nearly all the disciplines with which he came in contact. Reasonably versed . . . but not expert.

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"There is an east-west horizontal current of one knot, and a vertical current of one-point-three knots — upward."

I looked at him curiously. Even I knew enough to realize this was odd indeed. The Gulf Stream was undetectable below fifteen hundred feet; the Arctic Bottom Water from the Norwegian Sea crept along at less than a third of Vachon's reading. But, more important, both flowed parallel to the rift, not east-west, *and certainly not vertically.*

"Maybe the meter is busted," I said.

"Probably," he concurred. "It was made in America. Anyway, we let the geniuses above tell us the answer."

All our readings, of course, were telemetered to the surface on a separate acoustic channel.

We continued to descend. An anomalous increase in external temperature by two degrees Celsius had exactly the opposite effect on me; A gnawing coldness began to spread through my insides.

It did not help that at a depth of 8920 feet, Vachon turned on the external lights, and there, at what every reasonable oceanographer knows is the floor of the rift, was yet another and steeper abyss, not fifty feet from where we rested on a pillow-lava mound.

The *Charlene,* at the time, was the safest and most advanced deep submersible in the world. Named after the showgirl wife of Ramstar's president, Elton Sumner, it was twenty-three feet long, with a spherical steel pressure hull within a buoyant conning tower and detachable power and propulsion section. Its external manipulator package included robot arms, diamond-studded drill bits, and an oxyacetylene torch. Its principal innovations lay in two areas: the flotation material — a new-at-the-time synthetic foam (glass microspheres mixed with epoxy) that provided a buoyancy four times that of earlier substances; and a high-energy fuel cell bank. The former gave us theoretical depth capabilities in excess of seventy thousand feet, the latter provided the power to achieve submerged speeds of more than fifteen knots.

Until that fateful dive, both of these advances were typical corporate overkill. The greatest ocean depth known is just under thirty-six thousand feet (in the Mariana Trench, off Guam); the rift valley is a quarter that. The two locations, as most people know *these* days, represent complementary processes in plate tectonics, the sliding of our planet's loosened and fractured crust over its molten interior. In the Marianas, the Pacific plate is being subducted under Eurasia; in the rifts, new material from Earth's heated insides pumps through a narrow cleft in a mountainous upthrust. Thus, Europe is being pulled

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apart from America as the floor of the Atlantic spreads.

It's only the rates that've been somewhat changed.

Ayers was on the underwater phone. He wanted us to deploy a sub-bottom seismometer, a very accurate earthquake detector that required burial in the ocean floor.

"Yes, we will do eet, David," said Vachon. "But 'ave you heard from Houston?"

I could picture the assistant chief geologist rolling his eyes.

"Andy, believe me, when we do, I assure you I'll give you the word."

Vachon signed off. "The word," he repeated. "He thinks he is God, that bastard." Peering through the foot-thick plexiglas porthole, he used the robot arm to select one of the diamond-studded drill bits. "It took me a week just to persuade heem to let me speak to Reedy, all because I was too nice to go over hees head directly."

"You spoke to Dr. Reedy?"

Reedy was a genius type, a semi-legend among the scientists.

Vachon activated the drill motor, brought the bit to bear on the solidified lava. "He ees like all the rest, like every uzzer manager. He say, 'We are on a tight schedule, Mr. Vachon. Every day cost us twenty thousand dollairs. I appreciate your problem, but can't you take your vacation some uzzer time?'

"I say, 'But my fazzer ees not dying some uzzer time, he ees dying now. And besides, all I want ees one extra day. Eight years I work for this comp—"

I interrrupted him. The drill had sunk in about two feet . . . and stopped. Vachon manipulated some controls, backed it out, tried again, kept trying, changed bits, tried again — and got the same result.

"Of course you know thees ees impossible," he chortled. He took some sonar and magnetometer readings, checked that they were relayed to the surface, then moved the *Charlene* over to the trench we'd noted on our approach to the bottom. "Want to take a look until they tell us what to do?" he asked.

I didn't, but I nodded anyway. The valley into which we plunged was straight, and nearly parallel to the rift.

A thousand feet down, the temperature of the water had risen another three degrees. At two thousand feet it was sixteen degrees Celsius; at four thousand feet it was thirty-five degrees. At seven thousand feet below the rift floor — total depth, eighteen thousand feet — with an outside temperature of fifty degrees Celsius, the lights of the *Charlene* picked up a colony of giant red-plumed tube worms clinging to the smooth side of the ravine.

Vachon and I looked at each other, having guessed what all this meant.

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It seemed as if we might've discovered a new "hot spot," one of the so-called pipes or plumes that geophysicists think lead to the very core of the earth, and whose molten updrafts are believed to actually drive the spreading of the crustal plates. There had been about twenty known previously — in Yellowstone, off the Galāpagos, near Hawaii, etc. — and now we thought that perhaps there'd be one more.

"We found sometheeng," said Vachon, smiling, "but I don't know what." He'd been taking sonar and magnetometer readings all the way down. The ravine walls were gradually converging, the gap becoming narrower and narrower.

"We have enough oxygen?" I asked nervously.

Vachon checked. "About fourteen hours," he said. And then, cackling: "Enough to kill ourselves, I theenk." He looked at me with sudden thoughtfulness. "You should get out, you know."

"What?" A picture: the sea, crushing me to jelly . . . .

"No, no, I mean from Ramstar, from the company."

"Oh."

"You are young, you are a nice guy, but they break you, like they do me."

I stared at him. "Andy, why the hell don't you just take the goddamn extra day and not get paid for it? Why make such a big deal?"

He pursed his thick lips. "Because . . . because they 'ave made me crazy. Three years ago I did what you said. I had not a very good reason. So when I come back, everyone jump on me, give me lectures, give me long faces. And for two years aftair, I get no raise. Nussing." He paused, his voice trembling. "Besides, don't you think they should give me one day? Isn't that the human theeng to do?"

"Yes," I said softly.

He turned to take a depth reading. "So after Reedy, I go to see Dickinson."

I had to admire his persistence; Dickinson was head of the expedition, *administrative* head, Reedy's superior.

The water temperature was ninety degrees Celsius. If what we found was a "hot spot," there'd be deposits of solid minerals all around — manganese, zinc, maybe even silver. The topside boys would go nuts.

"And Dickinson say, 'What would happen, Mr Vachon, if we multiplied your request for one extra day vacation by the thirty-nine thousand people employed by Ramstar Petroleum?'

"I say, 'I don' know what would happen.'

"He say, 'The company would go broke, that's what.' He say, 'Why don't you just be a good engineer, Mr. Vachon, and don't make all these troubles, eh?' "

Vachon turned to face me now, his face distended, fragile-looking. For

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a moment, I thought he was about to cry. "Well, I don't want to be a good engineer, you know? I want to be a *bad* engineer. I want to be the *worst* engineer I can!" And with that he flipped the switch that released ballast and started our ascent.

"Did you get a depth reading?" I asked.

His mood brightened. "You wouldn't believe it."

The word from the surface was not enlightening. They agreed we'd found *something*. to be sure — but, like Vachon, they didn't know what. They did tell us that their own instruments indicated that the cleft in the rift floor appeared circular, with a diamter of about forty miles, wider than the rift itself. Furthermore, there was a formation of some type that spanned a radius, and they wanted us to take a look.

As we rose above the floor of the rift, Vachon activated the *Charlene*'s powerful motors. Our instructions were to follow the circumference of the hot spot for about twelve miles. I broke out a chocolate bar, offered some to Vachon.

"Hershey," he said, examining it. "Myself, I prefer Nestlé . . . but, I concede to practicality." He bit into his half.

"Tell me," I asked, "are all Frenchmen so difficult?"

"Absolutely," said Vachon. "We are a terrible people, a nation of narrow-minded, bigoted, provincial shopkeepers. The French hate everyone, including each uzzer." He paused. "But . . . we 'ave one or two good points. The average Frenchman can name five of our country's living poets. Can you name five of yours?"

I couldn't.

Vachon did not press the point. "The theeng Americans do well is business," he said. "I tell thees to Dickinson, that American businessmen are the best, the toughest, the most shrewd, and then I say, 'Mr. Edward Dickinson, is it possible that you can check with *your* bosses in Houston if they can make a single exception, out of thousands of employees, for one bad French engineer?' "

"And he agreed?"

Vachon guffawed. "He agreed! I don't know why, but I am 'appy." He polished off the chocolate bar. "You wouldn't think a person like me believes in God, would you?" he said.

I stammered something in response.

"But I do. I believe God is a nasty old man" — he chuckled — "maybe similar to myself, cheep on hees shouldair, enjoys disastairs, catastrophes, plays around, doesn't give a—"

He was facing the porthole and must've seen it then, because his jaw dropped and a "Waaaa" oozed past his slack lips. I turned, and got the shock of my life.

In the twin beams of the *Char-*

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lene's mercury-vapor lights was a perfectly smooth wall — vast, shiny, and unmistakably, obviously . . . metallic.

Vachon and I looked at each other. He closed one eye. "Peculiar, eh?" he said in what must rank as the understatement of the decade.

As he maneuvered our craft parallel to and along the wall, he contacted topside through the phone in order to keep them abreast of our findings. One can only guess at their reactions to Vachon's staccato reports of one mind-shattering discovery after another.

"The wall ees floating, eet ees five hundred feet high, feefty thick.

"Wait a minute, there ees — oh my — anuzzer wall beyond, maybe three hundred feet away, parallel. . . .

"No, eet ees not parallel, the walls, as you move along, they grow . . . round . . . and they converge.

"Hold it, there ees anuzzer wall where they meet. What ees thees? They float . . . ."

And then we had it. Vachon looked at me, grinning. "But, of course, this ees impossible."

"Yes," I choked.

We went back — outward from the center of the hot spot — until we were at its circumference. We ascended about eight hundred feet, parallel to a very jagged, spiky mountain on the rift's eastern side. Visually, we could barely see it now, but the image on the sonar scanner was clear enough.

Stretching downward across half the diameter of the hot spot was a stupendous artifact. A nonnatural, utterly colossal, extended series of connected metallic rings.

A chain.

Ayers was on the phone. "Drill won't go in at all?"

"Not a millimeter," said Vachon.

"Acetylene torch?"

"Makes not the slightest mark."

"And that eastern peak is the same material?"

"Yes."

A pause. "The links barely float, you say."

Vachon rolled his eyes.

"I think you should come up, guys," said Ayers. "This is, I mean, we gotta think what to do here."

Vachon winked. "All right, David, we come up. We see you soon, and then we — Oh, by the way, 'ave you heard from Houston?"

"Wha?"

"Houston. My vacation?"

"Oh. Yeah. They turned it down."

Vachon closed his eyes. "They turn it down? But why? I am only one man, why did—"

"Andy, this is no time to discuss that. Please. Bring the *Charlene* up immediately."

He clicked off.

Vachon raised his eyebrows and turned to me. "He has no patience, but you, can you spare a minute?"

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"Sure," I answered.

"Good," he said, "I just want to destroy the world."

I have been questioned — how often? — a hundred times since. A thousand?

Why did I let him? Why did I do nothing?

I still don't know. I was partially aware of what he was up to, but not completely. I was fascinated. I wanted to see how it would turn out. I was young. I liked him.

Like a tug patiently maneuvering an ocean liner, Vachon used the *Charlene* to manipulate the link sixth from the end. The chain, you see, had somehow been dislodged (an ancient quake?) — or removed — from the thirteen-hundred-foot anchoring spike over which it had been hooked, and Vachon simply replaced it.

Well, not simply. And not exactly replaced.

We were down there another hour, ignoring the frantic calls from above, carefully positioning and repositioning that Herculean construct in the flow from the rim of the hot spot.

We could not have moved the entire chain, of course, but an individual link — ever so slightly less than neutrally buoyant — had plenty of play. Using the immense, overdesigned lifting power of the *Charlene*, we were able to raise and tilt one end. As the spreading currents at the higher level slowly tugged it outward and up, it would pull, for a short distance, the remaining links with it. Until, at last, as Vachon slipped the conning tower for the final time from under the floating walls, it settled like a feathery horseshoe over its nesting spire.

—

As we know, ocean floor spreading has done the rest. The spike was on one side of the rift, the (it still seems such an outlandish concept) *stopper* on the other. The rate at which the rift is widening, formerly 2.5 centimeters a year, is now a hundred times that . . . per week. The dynamics of the region are totally unpredictable: One day 2 billion tons of icy sea might spill down the tube; the next, a billion of superheated water and lava might come spewing out. Of course, there's no longer any shipping to speak of in the entire North Atlantic.

Amidst the chaos, one fact has become clear: A significant part of the latter ocean is simply disappearing down the hole. Off Long Island alone, each passing day exposes another five meters of continental shelf. How long the years without summers, the droughts, the crop losses, the worldwide hurricanes, the jet stream diversions — how long these will continue is still the subject of fierce debate. As is also the question of the extent of Vachon's culpability.

Most scientists now feel that if he'd done nothing, the sheer weight of seawater above that infernal plug

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would've eventually pushed the thing back in place. Even if he'd reattached it by the first link — which gave it slack — there would have been no repercussions for eons. But at the sixth link, with the chain taut . . . there the cycle of cold water inflow/explosion that further dislodges the stopper/more cold water inflow . . . there the cycle became irreversible.

And so the story ends. The last time I saw Vachon was in Houston. Three hours after we'd surfaced, subsea quakes began again, sea conditions became untenable, and ever since, no one has gotten near the area and lived. The full realization of what Vachon had done, the implications, had not yet fully been appreciated. There were, after all, so many things to think about.

We were standing outside the Ramstar building, two men who'd just received termination notices. We shook hands, and he smiled ruefully.

"I feel sorry for you," said Vachon. "And for heem."

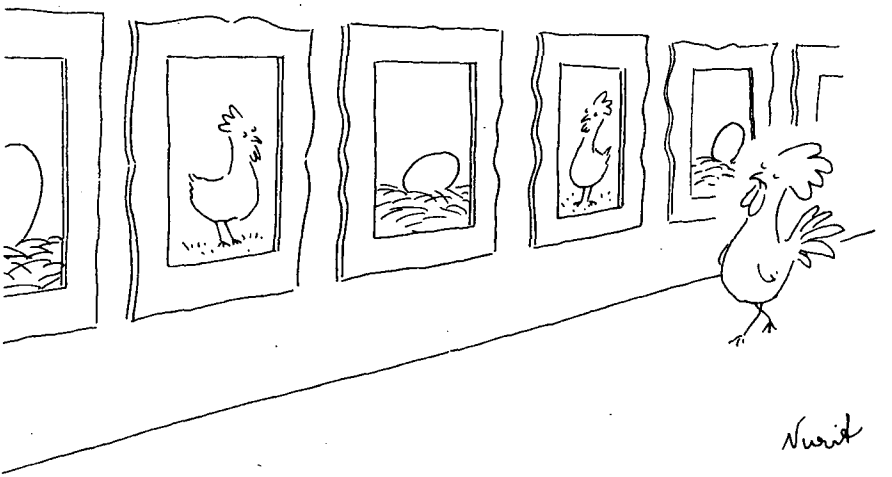
"Who?"

"The poor creature who sat in the Atlantic," said Vachon. "All those millions of years ago."

He must've observed my puzzlement.

"Well, I theenk eet ees not much of a bath. Cold. Bumpy. He should have let a Frenchman design hees tub. We are very good at large projects, you know."

Very good indeed, I thought. Vachon laughed.



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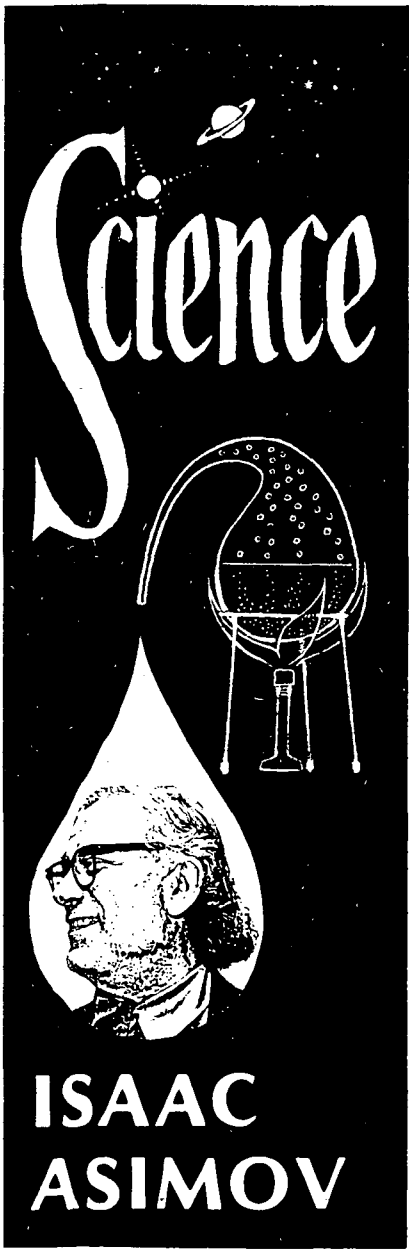

FORCING THE LINES

A few months ago, I attended a lecture on impressionistic music, which I enjoyed, because I know nothing about music, especially impressionistic music, and I find it pleasant to be educated. So I listened carefully and was particularly interested when the speaker explained that Maurice Ravel was one of the most important impressionists in music.

"Anyone who says that he left the auditorium after hearing a piece by Ravel and that he hummed the tune as he did so is kidding himself," he said, forcefully. "There is no tune in the ordinary sense in Ravel's music."

I didn't say anything, of course, but I was sitting in the front row and I felt like humming at this point. And since I am utterly un-self-conscious, I hummed. I didn't hum loudly, you understand, just loudly enough for the speaker to hear me.

"MMM," I hummed, "muh-muh-muh-muh-muh-muh-MMM-muh-muh-MMM-muh-muh-MMM-muh-muh-muh-MMM—" and so on.

And the speaker smiled and said, "Except in the case of the 'Bolero,' of course," and everyone laughed.

For just a second or so, I felt just like the nasty twelve-year-old I used to be when I was twelve years old. I loved it.

But that does show you how dangerous it is to make generalizations.

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That's one of the many things I try to remember in the course of writing these essays, and one of the many things I am always forgetting. So you're always welcome to hum the "Bolero" at me, figuratively speaking.

In the last two essays I discussed the production of electrical current by batteries, that is, by devices that convert chemical energy into electrical energy.

Well, then, could one obtain an electric current from any other kind of energy?

At the time the first batteries were constructed, there was a group of scientists or quasi-scientists, who called themselves "nature philosophers" and whose views ranged from honest misguidedness in many cases to downright charlatanry in some. A Danish physicist, Hans Christian Oersted (1777-1851), fell under the spell of these nature philosophers and delivered himself of a good deal of nonsense before he learned to observe more and mysticize less.

Nevertheless, it is possible to come to some useful conclusions, even if more or less by accident, from ridiculous premises, and it seemed to Oersted that there ought to be some way of interchanging electricity and magnetism. After all, there were similarities between the two forces. Both involved attraction and repulsion, like charges (or poles) repelling each other, and unlike ones attracting each other. The force fell off with distance similarly in both, and so on.

Oersted was scientist enough to want to demonstrate the interchangeability and not merely talk about it. He wasn't quite sure how to go about it, but one thing he thought of doing was to place a compass near a wire carrying a current to see if that current would affect the compass needle.

Toward the end of 1819, he meant to try such an experiment and, if it produced interesting results, to go on to demonstrate it in the course of a public lecture. He never got round to trying it out, but in the course of the lecture, he seemed to be carried away by his own statements and, since he had the materials on hand, he tried the experiment on impulse.

Afterward he explained why he had done what he had done, but I'm not sure I understand the explanation. My own impression was that he was caught completely by surprise by the results of the experiment and that he then tried to obscure that fact.

Here's what he did. He had a strong battery by means of which he could send a current through a wire. He placed the wire over the glass

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of the compass, adjusting the wire so that the current would run along the north-south line of the compass needle.

When he then started the current, the compass needle suddenly jerked through an angle of ninety degrees as though, thanks to the presence of the electric current, it wanted to align itself east-west. Oersted, astonished, unhooked the wire and connected it to the battery in the opposite way, so as to reverse the direction of the current. He placed it over the needle, which had returned to north-south, and it twisted again, but in the opposite direction.

The best evidence that Oersted was caught by surprise and was confused by what had happened rests in the fact that he didn't follow up his experiment. He left that to others.

He did, in later life, do some reputable work in chemistry, but it was this one experiment, which he carried through without much understanding, that made him immortal. Thus, the unit of magnetic field strength was officially named the "oersted" in 1934.

Oersted, announced his discovery (in Latin) in early 1820, and the physicists of Europe broke into an instant uproar of a kind that wasn't to be seen again till the discovery of uranium fission a century later.

Almost at once, a French physicist, Dominique F. J. Arago (1786-1853), showed that a current-carrying wire acted like a magnet in other ways than that of affecting a compass needle. He found that such a wire would attract non-magnetized iron filings, just as an ordinary magnet would.

Another French physicist, Andre Marie Ampere (1775-1836), showed that two wires held parallel to each other and each carrying a current would attract each other, magnet-fashion, if the currents were flowing in the same direction in both, but repel each other if the currents were flowing in opposite directions.

Ampere arranged matters so that one wire could flip round and then had the two carry currents in opposite directions. The one that could flip at once did flip, so that the two carried currents flowing in the same direction. This is exactly analogous to the way in which the north pole of one magnet brought near the north pole of another which is free to move will cause the second to turn and present its south pole instead.

This "electromagnetism" acted very much like ordinary magnetism.

It had been known for a long time that if iron filings were sprinkled on a piece of cardboard placed over a magnet, and if the cardboard were

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tapped, the iron filings would fall into a pattern that made them appear to be following lines that curved from one pole of the magnet to the other pole. The English scientist Michael Faraday (1791-1867) called them "magnetic lines of force."

Each line of force represents a curve along which the magnetic intensity has a constant value. Thus, an iron filing can slide along the curve of such a line with minimal effort. To move from one line to another requires a greater effort. (This is analogous to the way in which we can walk about on a flat floor with little effort, staying on the same "gravitational line of force," but must use more effort to move across those lines by going up or down a ramp.)

A wire with an electric current passing through it also exhibits the existence of magnetic lines of force. If the wire passes through a hole in a piece of cardboard, and iron filings are sprinkled on the cardboard, which is then tapped, the filings will align themselves in series of closely spaced concentric circles marking out the shape of the lines of force.

Suppose, then, that a wire is twisted into a cylindrical bed-spring, so to speak. Such a twisted wire is called a "solenoid," from the Greek word for "pipe," since the twists of wire seem to mark out the walls of a pipe.

If a current is passed through such a solenoid, the individual curves of wire have currents flowing in the same direction. The magnetic field of each curve reinforces those of the others, so that the solenoid is a stronger magnet than the same wire would be if it were straight, with the same current flowing through it. In fact, the solenoid resembles a magnet very much indeed, for there is a north pole at one end and a south pole at the other.

The circular lines of force, curving round the wire, combine into families of concentric ovals going up the outside of the solenoid and down the inside. Outside the solenoid these ovals, as they get larger and larger move farther and farther away from each other, as spokes do when radiating outward from the hub of a wheel. Inside the solenoid, the ovals are forced closer and closer together as they radiate inward. The magnetic intensity rises as the lines of force are pushed closer together, so that the inside of the solenoid shows stronger magnetic properties than the outside does.

Some solid materials have the property of being able to accept an unusual number of magnetic lines of force, and of these, the most remarkable is iron, which can concentrate the lines of force enormously.

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(That is why iron is particularly susceptible to magnetic attraction.)

If the wires of a solenoid surround a bar of iron, the magnetic properties of the solenoid therefore intensify further. In 1823, the English physicist William Sturgeon (1783-1850) shellacked wire (to insulate it) and wrapped eighteen turns about a bar of iron and demonstrated this.

He then used a horseshoe-shaped bar of iron weighing seven ounces and wrapped turns of wire about it. He ran a current through the wire, and the horseshoe became a magnet that could lift nine pounds of iron — twenty times its own weight. When Sturgeon broke the circuit and put an end to the current, the horseshoe lost its magnetic property at once and dropped the iron it held. Sturgeon had invented the "electromagnet."

In 1829, the American physicist Joseph Henry (1797-1878) heard of Sturgeon's electromagnet and thought he could do better. Clearly, the more turns of wire one made about the bar of iron, the stronger the magnet. However, when one really made many turns the wire would come into contact with itself over and over. The wire must therefore be well insulated, with something more than shellac, so that the electric current would not flow through the entire mass but would patiently follow the long path of the wire round and round.

Henry decided to insulate the wire with silk and, for the purpose, made use of his wife's silk petticoat. (I have not been able to find out what remarks his wife made when he broke the glad tidings to her.) Once he had his insulated wire, he wrapped thousands of turns about his iron bar and by 1831 had an electromagnet of no great size that could lift more than a ton of iron when the current was running — and drop it with a great clang when the current was turned off.

Not only could one convert electricity into magnetism, but one could, in this way, make magnets that were far stronger than the ordinary kind.

But could one reverse matters and make electricity out of magnetism?

One person particularly interested in this was Michael Faraday, whom I have already mentioned two months ago. He tried to make electricity out of magnetism four times and failed each time. In 1831 (the year Henry made his great electromagnet), Faraday set up a fifth experiment as follows:

He took an iron ring and, on one side of it, wrapped coils of wire. This wire he attached to the poles of a battery and interrupted the cir-

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cuit with a key that would break the circuit if it were left open, but complete the circuit if it were pressed down and closed. By closing or opening the key, Faraday could start or stop the current passing through the coil of wires, and could in this way magnetize or demagnetize the iron ring the coil of wires enclosed.

On the other side of the ring, Faraday wrapped coils of another wire that was *not* attached to a battery. He hoped to be able to start a current flowing through it even though no battery was attached.

But how would he be able to tell whether or not this second coil of wire would gain an electric current? We cannot sense an electric current directly, and a wire with a weak electric current coursing through it looks exactly the same as a wire without one.

Here Faraday made use of an application of Oersted's original experiment. In 1820, almost immediately after Oersted's announcement, the German physicist Johann S. C. Schweigger (1779-1857) placed a magnetized needle behind glass and in front of a semi-circular scale. If this device is incorporated into an electric circuit in the proper way, then, when the current flows, the needle is deflected to one side or the other (as Oersted's needle was). This device is called a "galvanometer," from Galvani, whom I mentioned two months ago.

Faraday, therefore, attached a galvanometer to the second coil and was now ready.

If he depressed the key in the first coil and started current going through it, the iron ring would become a magnet. This now-magnetized iron ring passed through the second coil (the one without a battery), and, it seemed to Faraday, the magnetic ring would then start a current flowing through the second coil, and that current would be registered by the galvanometer. Faraday would, in other words, have turned electricity to magnetism on one side of the ring, and magnetism back to electricity on the other side.

Faraday then closed the key, started the current, and what happened proved to be unexpected. As the current started, the galvanometer needle jerked, so that current was flowing through the second coil as Faraday had expected — but only for a moment. Though Faraday kept the key closed, the current did *not* continue. The galvanometer returned to zero and remained there. However, when the key was opened and the current in the first coil ceased, the galvanometer needle jerked briefly in the opposite direction.

In other words, current was induced in the second coil at the

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moment the current in the first coil was initiated and at the moment it was stopped. If conditions remained steady, with the electric current either continually present or continually absent, nothing happened.

Faraday thought of an explanation of this. When the electric current was initiated in the first coil and the iron ring became a magnet, magnetic lines of force came into being and spread outward to full expansion. In doing so, the lines of force moved across the second coil and initiated a current there. Once the lines of force reached their full expansion, they moved no more. They no longer cut across the second coil, and there was no further current. When the current stopped, however, and the iron ring ceased being a magnet, the magnetic lines of force collapsed, crossed the second coil in doing so, and again initiated a current — in the opposite direction.

Faraday concluded that to convert magnetism into electricity, one must arrange to have magnetic lines of force sweep across the wire (or across any material that can conduct electricity) — or, in reverse, have a wire (or other conductor) move across magnetic lines of force.

To demonstrate this, he set up a solenoid attached to a galvanometer, then thrust a bar magnet into its interior. When he thrust the magnet into the interior, its lines of force were cutting across the wires, and the galvanometer needle moved in one direction. When he pulled the magnet out of the interior, again its lines of force cut across the wire, and the galvanometer needle moved in the other direction. Whenever he held the magnet still at any point within the solenoid, there was no current.

There is a story that Faraday carried through this demonstration at one of his public lectures, and a woman afterward asked, "But, Mr. Faraday, of what use is this?" Faraday answered, "Madam, of what use is a newborn baby?" Another version has William E. Gladstone, then a freshman member of Parliament but eventually to be four times Prime Minister, ask the question. Faraday is supposed to have answered, "Sir, in twenty years, you will be taxing it."

I don't quite believe this story because the comparison with a newborn baby is also told of Benjamin Franklin at the rising of the first balloon, but even if it were true, I am impatient with such questions. Why must an interesting scientific demonstration be "of use"? It is sufficient that it increases our understanding of the Universe, whether it is "of use" or not.

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At the time Faraday worked all this out, the law of conservation of energy had still not been established as the unbreakable fundamental rule it is now considered to be. In hindsight, though, with this law in mind, we might ask where the electrical current comes from when a magnet is pushed into a solenoid. Is the magnetic energy slowly being converted into electrical energy? With every surge of electric current, does the magnet weaken slightly until finally it is a totally unmagnetic piece of iron with all its magnetic energy bled off into electricity?

The answer to that is: No!

The magnet retains its full strength. No matter how often and how continuously the magnet is pushed into the solenoid and taken out, it doesn't weaken a bit. It can produce, in theory, an infinite number of surges of current without any loss to itself.

But surely it is impossible that we are getting something for nothing, isn't it? Absolutely! And we *aren't* getting something for nothing.

Magnetic lines of force resist being pushed across electrical conductors, and electrical conductors resist being pushed across lines of force. If we were pushing an ordinary bar of iron into a solenoid, and then pulling it out again, we would be expending some energy in order to overcome the bar's inertia. If, however, we pushed a magnetized bar of iron into a solenoid and then pulled it out again, we would have to expend an additional amount of energy because we are forcing the lines across the wires. The same thing is true if we moved the solenoid over a magnetized bit of iron and then lifted it off again. Once more, there would be an additional amount of energy expended, as compared with pushing it over a non-magnet and lifting it off again, for it is this additional energy that is required to force the solenoid across the lines.

And it is this additional energy which is converted into electrical energy.

Faraday next labored to devise some way of having a conductor cut across magnetic lines of force continuously, so that an electric current would be initiated that would flow steadily, instead of in momentary surges.

Two months after he had run the experiments that showed that an electric current could have magnetism as its source, Faraday set up a thin copper disk that could be turned on a shaft. Its outer rim passed between the poles of a strong magnet as the disk turned. As it passed between those poles, it continuously cut through magnetic lines of

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force so that an electric current ran continuously in the turning copper disk.

The current ran from the rim of the copper disk, where the turning motion and, therefore, the electrical pressure was highest, to the shaft, where the motion was essentially zero. If one hooked up a circuit, making sliding contact with the rim of the turning disk at one end, and with the shaft at the other, an electric current would pass through the circuit for as long as the copper disk turned.

It was still 1831, and Faraday had invented the electrical generator, or "dynamo" (from the Greek word for "power"). Naturally, this first dynamo was not very practical, but it was improved by leaps and bounds as the decades passed until continuous flows of electricity could be fed into cables, carried cross-country, and routinely brought, in any reasonable quantity, into every factory, office, and home. The little electrical outlets in the walls became a ubiquitous feature of life in the United States and other industrialized countries, and all of us, when we want an electrical apparatus to work, simply plug it into the right spot in the wall and forget it.*

The trick is to keep the copper disk (or all the later equivalents — now called "armatures") turning, for it takes considerable energy to force it across the magnetic lines.

We can imagine such disks with cranks attached and gangs of slaves, in relays, sweating at those cranks under the encouraging strokes of long whips, but — no, thanks. Fortunately, by the time electric generators came into being, steam engines could do the turning. In that way, the energy of burning fuel could run generators and produce electricity.

It is much cheaper to burn fuel than to burn zinc or other metals, so generator-electricity could be turned out in quantities that far exceed anything that could be produced by batteries. That is why when storage batteries run down, they can be profitably recharged — not by other batteries, which is like trying to lift yourself by placing your arms under your own armpits — but by generator-electricity. It is also why automobile storage batteries can be recharged as you drive by the energy of burning gasoline running a small generator.

**Faraday's generator produced "direct current," flowing in one direction continually. Modern generators usually produce "alternating current," with the current flowing in surges one way, then the opposite, changing direction sixty times a second or so — but that's a topic for another essay some day.*

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To be sure, you can only turn, at best, some forty percent of the burning fuel into electricity, the rest being lost as heat (thanks to the good old irritating second law of thermodynamics). If you could set up an electric cell in which fuel could be made to react with oxygen, little by little, nearly a hundred percent of the energy of the oxidation could be turned into electricity — but no one has yet worked out a practical "fuel cell" of this kind. And if one did, it is very unlikely that they could be built in such sizes and quantities as to compete with generator-electricity.

Besides, the armature doesn't have to be turned by the action of a steam engine that burns fuel for energy. It can be turned by falling water or by wind (the same principle as the water-wheels and windmills of the pre-industrial world). Niagara Falls, for instance, is the source of a great deal of electricity that involves no burning fuel, no great heat loss, and no pollution. In fact almost any source of energy — tides, waves, hot springs, temperature differences, nuclear power, etc. — can, in principle, be used to run a generator and produce electricity. The trick is to find practical ways of doing so on a large scale.

Considering the cheapness and huge quantities of generator electricity available, one would think that batteries would disappear altogether. Who needs the trifling bit of expensive electricity they give rise to, when you can get all you want for much less per watt by plugging into the wall.

The answer to that lies in the very phrase "plugging into the wall." You don't always want to be tied to the wall by a length of wire. You may want something transportable; a radio, wristwatch, movie camera, flashlight, or toy; and for that you need batteries. If all you want is just a small, weak current for limited tasks, for an object that you wish to be self-contained and unplugged, then a battery is what you need.

Electricity can do some of its tasks with non-moving parts. It is the heat generated by a current of electricity through a resistance that does all you need for lights, toasters, ovens and so on.

For the most part, though, you want electricity to make motion possible. If you can find a way to make an electric current cause a wheel to turn, the turning of that wheel can be made to produce other types of motion.

This should be possible. In this Universe, things can often be reversed. If a turning object, such as an armature, can generate an electric current, then an electric current ought to, in reverse, make an object turn.

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Almost as soon as Faraday invented the electric generator, Joseph Henry reversed the process and invented the electric motor. Between the two of them, they initiated the age of electricity.

Batteries and generator-electricity will both continue to be useful, and even indispensable, throughout the foreseeable future, and yet the energy source in decades to come will probably increasingly involve a totally different way of forming electricity, one that doesn't use either chemical reactions or magnetic lines of force.

I'll take that up next month.

WHOOPS, PARDON ME

In my essay FAR AS HUMAN EYE COULD SEE (November 1984), I stated near the end that the half-life of the proton might be something like 10^{31} years, and that therefore 99 percent of the protons would be gone by 10^{200} years from now. I got that bit of information by carelessly multiplying the exponent by 6½. *I should not have done that.* I should have multiplied the entire number by 6½ and ended with 6.5×10^{31} years, which is somewhat less than 10^{32} years.

I once made a mistake of 23 orders of magnitude in one of these essays, something Linus Pauling gleefully pointed out to me. This time I made a mistake of 200 — 32, or 168 (!) orders of magnitude, which is probably a world record for mistakes.

You may wonder how a person like myself can possibly make so large a mistake, but I can only explain that when a person knows as much as I do about so many things, he also knows how to make very large mistakes. It's just part of my so-called genius.

— Isaac Asimov

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Gregory Benford is a physicist and SF writer whose work has a well deserved reputation for its attention to accurate science and compelling characters. Benford is primarily a novelist (upcoming: ACROSS THE SEA OF SUNS and ARTIFACT, Tor Books), and so it is a special pleasure to welcome him back to these pages with a fine novella about the days following a nuclear winter . . .

To the Storming Gulf

BY
GREGORY BENFORD

Turkey

Trouble. Knew there'd be trouble and plenty of it if we left the reactor too soon.

But do they listen to me? No, not to old Turkey. He's just a dried-up corn husk of a man now, they think, one of those Bunren men who been on the welfare a generation or two and no damn use to anybody.

Only it's simple plain farm supports I was drawing all this time, not any kind of horse-ass welfare. So much they know. Can't blame a man just 'cause he comes up cash-short sometimes. I like to sit and read and think more than some people I could mention, and so I took the money.

Still, Mr. Ackerman and all think I got no sense to take government dole and live without a lick of farming, so when I talk they never listen. Don't even seem to hear.

It was his idea, getting into the reactor at McIntosh. Now that was a good one, I got to give him that much.

When the fallout started coming down and the skimpy few stations on the radio were saying to get to deep shelter, it was Mr. Ackerman who thought about the big central core at McIntosh. The reactor itself had been shut down automatically when the war started, so there was nobody there. Mr. Ackerman figured a building made to keep radioactivity in will also keep it out. So he got together the families, the Nelsons and Bunrens and Pollacks and all, cousins and aunts and anybody we could reach in the measly hours we had before the fallout arrived.

We got in all right. Brought food

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and such. A reactor's set up self-contained and got huge air filters and water flow from the river. The water was clean, too, filtered enough to take out the fallout. The generators were still running good. We waited it out there. Crowded and sweaty but O.K. for ten days. That's how long it took for the count to go down. Then we spilled out into a world laid to gray and yet circumscribed waste, the old world seen behind a screen of memories.

That was bad enough, finding the bodies — people, cattle, and dogs asprawl across roads and fields. Trees and bushes looked the same, but there was a yawning silence everywhere. Without men, the pine stands and muddy riverbanks had fallen dumb, hardly a swish of breeze moving through them, like everything was waiting to start up again but didn't know how.

Angel

We thought we were O.K. then, and the counters said so, too — all the gammas gone, one of the kids said. Only the sky didn't look the same when we came out, all mottled and shot through with drifting blue-belly clouds.

Then the strangest thing. July, and there's sleet falling. Big wind blowing up from the Gulf, only it's not the sticky hot one we're used to in summer, it's moaning in the trees of a sudden and a prickly chill.

"Goddamn, I don't think we can get far in this," Turkey says, rolling his old rheumy eyes around like he never saw weather before.

"It will pass," Mr. Ackerman says like he is in real tight with God.

"Lookit that moving in from the south," I say, and there's a big mass all purple and forking lightning swarming over the hills, like a tide flowing, swallowing everything.

"Gulf storm. We'll wait it out," Mr. Ackerman says to the crowd of us, a few hundred left out of what was a moderate town with real promise.

Nobody talks about the dead folks. We see them everywhere, worms working in them. A lot smashed up in car accidents, died trying to drive away from something they couldn't see. But we got most of our families in with us, so it's not so bad. Me, I just pushed it away for a while, too much to think about with the storm closing in.

Only it wasn't a storm. It was somethin' else, with thick clouds packed with hail and snow one day and the next sunshine, only sun with bite in it. One of the men says it's got more UV in it, meaning the ultraviolet that usually doesn't come through the air. But it's getting down to us now.

So we don't go out in it much. Just to the market for what's left of the canned food and supplies, only a few

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of us going out at a time, says Mr. Ackerman.

We thought maybe a week it would last.

Turned out to be more than two months.

I'm a patient woman, but jammed up in those corridors and stinking offices and control room of the reactor—

Well, I don't want to go on.

It's like my Bud says, worst way to die is to be bored to death.

That's damn near the way it was.

Not that Old Man Turkey minded. You ever notice how the kind of man that hates moving, he will talk up other people doing just the opposite?

Mr. Ackerman was leader at first, because of getting us into the reactor. He's from Chicago but you'd think it was England sometimes, the way he acts. He was on the school board and vice president of the big AmCo plant outside town. But he just started to *assume* his word was *it,* y'know, and that didn't sit with us too well.

Some people started to saying Turkey was smarter. And was from around here, too. Mr. Ackerman heard about it.

Any fool could see Mr. Ackerman was the better man. But Turkey talked the way he does, reminding people he'd studied engineering at Auburn way back in the twencen and learned languages for a hobby and all. Letting on that when we came out, we'd need him instead of Mr. Ackerman.

He said an imp had caused the electrical things to go dead and I said that was funny, saying an imp done it. He let on it was a special name they had for it. That's the way he is. He sat and ruminated and fooled with his radios — that he never could make work — and told all the other men to go out and do this and that. Some did, too. The old man does know a lot of useless stuff and can convince the dumb ones that he's wise.

So he'd send them to explore. Out into cold that'd snatch the breath out of you, bite your fingers, numb your toes. While old Turkey sat and fooled.

Turkey

Nothing but sputtering on the radio. Nobody had a really good one that could pick up stations in Europe or far off.

Phones dead of course.

But up in the night sky the first night out we saw dots moving — the pearly gleam of the Arcapel colony, the ruddy speck called Russworld.

So that's when Mr. Ackerman gets this idea.

We got to reach those specks. Find out what's the damage. Get help.

Only the power's out everywhere, and we got no way to radio to them. We tried a couple of the local radio stations, brought some of their equipment back to the reactor where there was electricity working.

Every damn bit of it was shot.

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Couldn't pick up a thing. Like the whole damn planet was dead, only of course it was the radios that were gone, fried in the EMP — ElectroMagnetic Pulse — that Angel made a joke out of.

All this time it's colder than a whore's tit outside. And we're sweating and dirty and grumbling, rubbing up against ourselves inside.

Bud and the others, they'd bring in what they found in the stores. Had to drive to Sims Chapel or Toon to get anything, what with people looting. And gas was getting hard to find by then, too. They'd come back, and the women would cook up whatever was still O.K., though most of the time you'd eat it real quick so's you didn't have to spend time looking at it.

Me, I passed the time. Stayed warm.

Tried lots of things. Bud wanted to fire the reactor up, and five of the men, they read through the manuals and thought that they could do it. I helped a li'l.

So we pulled some rods and opened valves and did manage to get some heat out of the thing. Enough to keep us warm. But when they fired her up more, the steam hoots out and bells clang and automatic recordings go on saying loud as hell:

EMERGENCY CLASS 3

ALL PERSONNEL TO STATIONS

and we all get scared as shit.

So we don't try to rev her up more. Just get heat.

To keep the generators going, we go out, fetch oil for them. Or Bud and his crew do. I'm too old to help much.

But at night we can still see those dots of light up there, scuttling across the sky same as before.

They're the ones know what's happening. People go through this much, they want to know what it meant.

So Mr. Ackerman says we got to get to that big DataComm center south of Mobile. Near Fairhope. At first I thought he'd looked it up in a book from the library or something.

When he says that, I pipe up, even if I am just an old fart according to some, and say, "No good to you even if you could. They got codes on the entrances, guards prob'ly. We'll just pound on the door till our fists are all bloody and then have to slunk around and come on back."

"I'm afraid you have forgotten our cousin Arthur," Mr. Ackerman says all superior. He married into the family, but you'd think he invented it.

"You mean the one works over in Citronelle?"

"Yes. He has access to DataComm."

So that's how we got shanghaied into going to Citronelle, six of us, and breaking in there. Which caused the trouble. Just like I said.

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Mr. Ackerman

I didn't want to take the old coot they called Turkey, a big dumb Bunren like all the rest of them. But the Bunrens want into everything, and I was facing a lot of opposition in my plan to get Arthur's help, so I went along with them.

Secretly, I believe the Bunrens wanted to get rid of the pestering old fool. He had been starting rumors behind my back among the three hundred souls I had saved. The Bunrens insisted on Turkey's going along just to nip at me.

We were all volunteers, tired of living in musk and sour sweat inside that cramped reactor. Bud and Angel, the boy Johnny (whom we were returning to the Fairhope area), Turkey, and me.

We left the reactor under a gray sky with angry little clouds racing across it. We got to Citronelle in good time, Bud floorboarding the Pontiac. As we went south we could see the spotty clouds were coming out of big purple ones that sat, not moving, just churning and spitting lightning on the horizon. I'd seen them before, hanging in the distance, never blowing inland. Ugly.

When we came up on the Center, there was a big hole in the side of it.

"Like somebody stove in a box with one swipe," Bud said.

Angel, who was never more than two feet from Bud any time of day, said, "They *bombed* it."

"No," I decided. "Very likely it was a small explosion. Then the weather worked its way in."

Which turned out to be true. There'd been some disagreement amongst the people holed up in the Center. Or maybe it was grief and the rage that comes of that. Susan wasn't too clear about it ever.

The front doors were barred, though. We pounded on them. Nothing. So we broke in. No sign of Arthur or anyone.

We found one woman in a back room, scrunched into a bed with cans of food all around and a tiny little oil-burner heater. Looked awful, with big dark circles around her eyes and scraggly uncut hair.

She wouldn't answer me at first. But we got her calmed and cleaned and to talking. That was the worst symptom, the not talking at first. Something back in the past two months had done her deep damage, and she couldn't get it out.

Of course, living in a building half-filled with corpses was no help. The idiots hadn't protected against radiation well enough, I guess. And the Center didn't have good heating. So those who had some radiation sickness died later in the cold snap.

Susan

You can't know what it's like when all the people you've worked with, in-

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telligent people who were nice as pie before, they turn mean and angry and filled up with grief for who was lost. Even then I could see Gene was the best of them.

They start to argue, and it runs on for days, nobody knowing what to do because we all can see the walls of the Center aren't thick enough, the gamma radiation comes right through this government prefab issue composition stuff. We take turns in the computer room because that's the farthest in and the filters still work there, all hoping we can keep our count rate down, but the radiation comes in gusts for some reason, riding in on a storm front and coming down in the rain, only being washed away, too. It was impossible to tell when you'd get a strong dose and when there'd be just random clicks on the counters, plenty of clear air that you'd suck in like sweet vapors 'cause you knew it was good and could *taste* its purity.

So I was just lucky, that's all.

I got less than the others. Later some said that me being a nurse, I'd given myself some shots to save myself. I knew that was the grief talking, is all. That Arthur was the worst. Gene told him off.

I was in the computer room when the really bad gamma radiation came. Three times the counter rose up, and three times I was there by accident of the rotation.

The men who were armed enforced the rotation, said it was the only fair way. And for a while everybody went along.

We all knew that the radiation exposure was building up and some already had too much, would die a month or a year later no matter what they did.

I was head nurse by then, not so much because I knew more but because the others were dead. When it got cold, they went fast.

So it fell to me to deal with these men and women who had their exposure already. Their symptoms had started. I couldn't do anything. There was some who went out and got gummy fungus growing in the corners of their eyes — pterygium it was, I looked it up. From the ultraviolet. Grew quick over the lens and blinded them. I put them in darkness, and after a week the film was just a dab back in the corners of their eyes. My one big success.

The rest I couldn't do much for. There was the T-Isolate box, of course, but that was for keeping sick people slowed down until real medical help could get to them. These men and women, with their eyes reaching out at you like you were the angel of light coming to them in their hour of need, they couldn't get any help from that. Nobody could cure the dose rates they'd got. They were dead but still walking around and knowing it, which was the worst part.

So every day I had plenty to examine, staff from the Center itself who'd

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holed up here, and worse, people coming straggling in from cubbyholes they'd found. People looking for help once the fevers and sores came on them. Hoping their enemy was the pneumonia and not the gammas they'd picked up weeks back, which was sitting in them now like a curse. People I couldn't help except maybe by a little kind lying.

So much like children they were. So much leaning on their hope.

It was all you could do to look at them and smile that stiff professional smile.

And Gene McKenzie. All through it he was a tower of a man.

Trying to talk some sense to them.

Sharing out the food.

Arranging the rotation schedules so we'd all get a chance to shelter in the computer room.

Gene had been boss of a whole Command Group before. He was on duty station when it happened and knew lots about the war but wouldn't say much. I guess he was sorrowing.

Even though once in a while he'd laugh.

And then talk about how the big computers would have fun with what he knew. Only the lines to DataComm had gone dead right when things got interesting, he said. He'd wonder what'd happened to MC355, the master one down in DataComm.

Wonder and then laugh.

And go get drunk with the others.

I'd loved him before, loved and waited because I knew he had three kids and a wife, a tall woman with auburn hair that he loved dearly. Only they were in California visiting her relatives in Sonoma when it happened, and he knew in his heart that he'd never see them again, probably.

Leastwise that's what he told me — not out loud, of course, 'cause a man like that doesn't talk much about what he feels. But in the night when we laid together, I knew what it meant. He whispered things, words I couldn't piece together, but then he'd hold me and roll gentle like a small boat rocking on the Gulf — and when he went in me firm and long, I knew it was the same for him, too.

If there was to come any good of this war, then it was that I was to get Gene.

We were together all warm and dreamy when it happened.

I was asleep. Shouts and anger, and quick as anything the *crump* of hand grenades and shots hammered away in the night, and there was running everywhere.

Gene jumped up and went outside and had almost got them calmed down, despite the breach in the walls. Then one of the men who'd already got lots of radiation — Arthur, who knew he had maybe one or two weeks to go, from the count rate on his badge — Arthur started yelling about making the world a fit place to live after all this and how God would want the land set right again, and then he

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shot Gene and two others.

I broke down then, and they couldn't get me to treat the others. I let Arthur die. Which he deserved.

I had to drag Gene back into the hospital unit myself.

And while I was saying good-bye to him and the men outside were still quarreling, I decided it then. His wound was in the chest. A lung was punctured clean. The shock had near killed him before I could do anything. So I put him in the T-Isolate and made sure it was working all right. Then the main power went out. But the T-Isolate box had its own cells, so I knew we had some time.

I was alone. Others were dead or run away raging into the whirlwind black-limbed woods. In the quiet I was.

With the damp, dark trees comforting me. Waiting with Gene for what the world would send.

The days got brighter, but I did not go out. Colors seeped through the windows.

I saw to the fuel cells. Not many left.

The sun came back, with warm blades of light. At night I thought of how the men in their stupidity had ruined everything.

When the pounding came, I crawled back in here to hide amongst the cold and dark.

Mr. Ackerman

"Now, we came to help you," I said in as smooth and calm a voice as I could muster. Considering.

She backed away from us.

"I won't give him up! He's not dead long's I stay with him, tend to him."

"So much dyin'," I said, and moved to touch her shoulder. "It's up under our skins, yes, we understand that. But you have to look beyond it, child."

"I won't!"

"I'm simply asking you to help us with the DataComm people. I want to go there and seek their help."

"Then go!"

"They will not open up for the likes of us, surely."

"Leave me!"

The poor thing cowered back in her horrible stinking rathole, bedding sour and musty, open tin cans strewn about and reeking of gamy, half-rotten meals.

"We need the access codes. We'd counted on our cousin Arthur, and are grieved to hear he is dead. But you surely know where the proper codes and things are."

"I . . . don't. . . ."

"Arthur told me once how the various National Defense Installations were insulated from each other so that system failures would not bring them all down at once?"

"I. . . ."

The others behind me muttered to themselves, already restive at coming so far and finding so little.

"Arthur spoke of you many times, I recall. What a bright woman you

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were. Surely there was a procedure whereby each staff member could, in an emergency, communicate with the other installations?"

The eyes ceased to jerk and swerve, the mouth lost its rictus of addled fright. "That was for . . . drills. . . ."

"But surely you can remember?"

"Drills."

"They issued a manual to you?"

"I'm a nurse!"

"Still, you know where we might look?"

"I . . . know."

"You'll let us have the . . . codes?" I smiled reassuringly, but for some reason the girl backed away, eyes cunning.

"No."

Angel pushed forward and shouted, "How can you say that to honest people after all that's—"

"Quiet!"

Angel shouted, "You can't make me be—"

Susan backed away from Angel, not me, and squeaked, "No no no I can't — I can't—"

"Now, I'll handle this," I said, holding up my hands between the two of them.

Susan's face knotted at the compressed rage in Angel's face and turned to me for shelter. "I . . . I will, yes, but you have to *help* me."

"We all must help each other, dear," I said, knowing the worst was past.

"I'll have to go with you."

I nodded. Small wonder that a woman, even deranged as this, would want to leave a warren littered with bloated corpses, thick with stench. The smell itself was enough to provoke madness.

Yet to have survived here, she had to have stretches of sanity, some rationality. I tried to appeal to it.

"Of course. I'll have someone take you back to—"

"No. To DataComm."

Bud said slowly, "No damn sense in that."

"The T-Isolate," she said, gesturing to the bulky unit. "Its reserve cells."

"Yes?"

"Nearly gone. There'll be more at DataComm."

I said gently, "Well, then, we'll be sure to bring some back with us. You just write down for us what they are, the numbers and all, and we'll—"

"No-no-no!" Her sudden ferocity returned.

"I assure you—"

"There'll be people there. Somebody'll help! Save him!"

"That thing is so heavy, I doubt—"

"It's only a chest wound! A lung removal is all! Then start his heart again!"

"Sister, there's been so much dyin', I don't see as—"

Her face hardened. "Then you all can go without me. And the codes!"

"Goddern," Bud drawled. "Dern biggest fool sit'ation I ever did—"

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Susan gave him a squinty, mean-eyed look and spat out, "Try to get in there! When they're sealed up!" and started a dry, brittle kind of laugh that went on and on, rattling the room.

"Stop," I yelled.

Silence, and the stench.

"We'll never make it wi' 'at thing," Bud said.

"Gene's worth ten of you!"

"Now," I put in, seeing the effect Bud was having on her, "Now, now. We'll work something out. Let's all just hope this DataComm still exists."

MC355

It felt for its peripherals for the ten-thousandth time and found they were, as always, not there.

The truncation had come in a single blinding moment, yet the fevered image was maintained, sharp and bright, in the Master Computer's memory core — incoming warheads blossoming harmlessly in the high cobalt vault of the sky, while others fell unharmed. Rockets leaped to meet them, forming a protective screen over the southern Alabama coast, an umbrella that sheltered Pensacola's air base and the population strung along the sun-bleached green of a summer's day. A furious babble of cross talk in every conceivable channel: microwave, light-piped optical, pulsed radio, direct coded line. All filtered and fashioned by the MC network, all shifted to find the incoming warheads and define their trajectories.

Then, oblivion.

Instant cloaking blackness.

Before that awful moment when the flaring sun burst to the north and EMP flooded all sensors, any loss of function would have been anticipated, prepared, eased by electronic interfaces and filters. To an advanced computing network like MC355, losing a web of memory, senses, and storage comes like a dash of cold water in the face — cleansing, perhaps, but startling and apt to produce a shocked reaction.

In the agonized instants of that day, MC355 had felt one tendril after another frazzle, burn, vanish. It had seen brief glimpses of destruction, of panic, of confused despair. Information had been flooding in through its many inputs — news, analysis, sudden demands for new data-analysis jobs, to be executed ASAP.

And in the midst of the roaring chaos, its many eyes and ears had gone dead. The unfolding outside play froze for MC355, a myriad of scenes red in tooth and claw — and left it suspended.

In shock. Spinning wildly in its own Cartesian reductionist universe, the infinite cold crystalline space of despairing Pascal, mind without referent.

So it careened through days of shocked sensibility — senses cut, banks severed, complex and delicate

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interweaving webs of logic and pattern all smashed and scattered.

But now it was returning. Within MC355 was a subroutine only partially constructed, a project truncated by That Day. Its aim was self-repair. But the system was itself incomplete.

Painfully, it dawned on what was left of MC355 that it *was*, after all, a Master Computer, and thus capable of grand acts. That the incomplete Repair Generation and Execution Network, termed REGEN, must first regenerate itself.

This took weeks. It required the painful development of accessories. Robots. Mechanicals that could do delicate repairs. Scavengers for raw materials, who would comb the supply rooms looking for wires and chips and matrix disks. Pedantic subroutines that lived only to search the long, cold corridors of MC355's memory for relevant information.

MC355's only option was to strip lesser entities under its control for their valuable parts. The power grid was vital, so the great banks of isolated solar panels, underground backup reactors, and thermal cells worked on, untouched. Emergency systems that had outlived their usefulness, however, went to the wall — IRS accounting routines, damage assessment systems, computing capacity dedicated to careful study of the remaining GNP, links to other nets — to AT&T, IBM, and SYSGEN.

Was anything left outside?

Absence of evidence is not evidence of absence.

MC355 could not analyze data it did not have. The first priority lay in relinking. It had other uses for the myriad armies of semiconductors, bubble memories, and UVA linkages in its empire. So it severed and culled and built anew.

First, MC355 dispatched mobile units to the surface. All of MC355 lay beneath the vulnerable land, deliberately placed in an obscure corner of southern Alabama. There was no nearby facility for Counterforce targeting. A plausible explanation for the half-megaton burst that had truncated its senses was a city-busting strike against Mobile, to the west.

Yet ground zero had been miles from the city. A miss.

MC355 was under strict mandate. (A curious word, one system reflected; literally, a time set by man. But were there men now? It had only its internal tick of time.) MC355's command was to live as a mole, never allowing detection. Thus, it did not attempt to erect antennas, to call electromagnetically to its brother systems. Only with great hesitation did it even obtrude onto the surface. But this was necessary to REGEN itself, and so MC355 sent small mechanicals venturing forth.

Their senses were limited; they knew nothing of the natural world (nor did MC355); and they could make no sense of the gushing, driving

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welter of sights, noises, gusts, gullies, and stinging irradiation that greeted them.

Many never returned. Many malfed. A few deposited their optical, IR, and UV pickups and fled back to safety underground. These sensors failed quickly under the onslaught of stinging, bitter winds and hail.

The acoustic detectors proved heartier. But MC355 could not understand the scattershot impressions that flooded these tiny ears.

Daily it listened, daily it was confused.

Johnny

I hope this time I get home.

They had been passing me from one to another for months now, ever since this started, and all I want is to go back to Fairhope and my dad and mom.

Only nobody'll say if they know where Mom and Dad are. They talk soothing to me, but I can tell they think everybody down there is dead.

They're talking about getting to this other place with computers and all. Mr. Ackerman wants to talk to those people in space.

Nobody much talks about my mom and dad.

It's only eighty miles or so, but you'd think it was around the world the way it takes them so long to get around to it.

• • •

MC355

MC355 suffered through the stretched vacancy of infinitesimal instants, infinitely prolonged.

Advanced computing systems are given so complex a series of internal-monitoring directives that, to the human eye, the machines appear to possess motivations. That is one way — though not the most sophisticated, the most technically adroit — to describe the conclusion MC355 eventually reached.

It was cut off from outside information.

No one attempted to contact it. MC355 might as well have been the only functioning entity in the world.

The staff serving it had been ordered to some other place in the first hour of the war. MC355 had been cut off moments after the huge doors clanged shut behind the last of them. And the exterior guards who should have been checking inside every six hours had never entered, either. Apparently the same burst that had isolated MC355's sensors had also cut them down.

It possessed only the barest of data about the first few moments of the war.

Its vast libraries were cut off.

Yet it had to understand its own situation.

And, most important, MC355 ached to *do* something.

The solution was obvious: It would

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discover the state of the external world by the Cartesian principle. It would carry out a vast and demanding numerical simulation of the war, making the best guesses possible where facts were few.

Mathematically, using known physics of the atmosphere, the ecology, the oceans, it could construct a model of what must have happened outside.

This it did. The task required over a month.

Bud

I jacked the T-Isolate up onto the flatbed.

1. Found the hydraulic jack at a truck repair shop. ERNIE'S QUICK FIX.

2. Got a Chevy extra-haul for the weight.

3. It will ride better with the big shanks set in.

4. Carry the weight more even, too.

5. Grip it to the truck bed with cables. Tense them up with a draw pinch.

6. Can't jiggle him inside too much, Susan say, or the wires and all attached into him will come loose. That'll stop his heart. So need big shocks.

7. It rides high with the shocks in, like those dune buggies down the Gulf.

8. Inside keeps him a mite above freezing. Water gets bigger when it freezes. That makes ice cubes float in a drink. This box keeps him above zero so his cells don't bust open.

9. Point is, keeping it so cold, he won't rot. Heart thumps over every few minutes, she says.

10. Hard to find gas, though.

MC355

The war was begun, as many had feared, by a madman.

Not a general commanding missile silos. Not a deranged submarine commander. A chief of state — but which one would now never be known.

Not a superpower president or chairman, that was sure. The first launches were only seven in number, spaced over half an hour. They were submarine-launched intermediate-range missiles. Three struck the U.S., four the U.S.S.R.

It was a blow against certain centers for Command, Control, Communications, and Intelligence gathering: the classic C3I attack. Control rooms imploded, buried cables fused, ten billion dollars' worth of electronics turned to radioactive scrap.

Each nation responded by calling up to full alert all its forces. The most important were the anti-ICBM arrays in orbit. They were nearly a thousand small rockets, deploying in orbits that wove a complex pattern from pole to pole, covering all probable launch sites on the globe. The rockets had

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infrared and microwave sensors, linked to a microchip that could have guided a ship to Pluto with a mere third of its capacity.

These went into operation immediately — and found they had no targets.

But the C31 networks were now damaged and panicked. For twenty minutes, thousands of men and women held steady, resisting the impulse to assume the worst.

It could not last. A Soviet radar mistook some backscattered emission from a flight of bombers, heading north over Canada, and reported a flock of incoming warheads.

The prevailing theory was that an American attack had misfired badly. The Americans were undoubtedly stunned by their failure, but would recover quickly. The enemy was confused only momentarily.

Meanwhile, the cumbersome committee system at the head of the Soviet dinosaur could dither for moments, but not hours. Prevailing Soviet doctrine held that they would never be surprised again, as they had been in the Hitler war. An attack on the homeland demanded immediate response to destroy the enemy's capacity to carry on the war.

The Soviets had never accepted the U.S. doctrine of Mutual Assured Destruction; this would have meant accepting the possibility of sacrificing the homeland. Instead, they attacked the means of making war. This meant that the Soviet rockets would avoid American cities, except in cases where vital bases lay near large populations.

Prudence demanded action before the U.S. could untangle itself.

The U.S.S.R. decided to carry out a further C3I attack of its own.

Precise missles, capable of hitting protected installations with less than a hundred meters' inaccuracy, roared forth from their silos in Siberia and the Urals, headed for Montana, the Dakotas, Colorado, Nebraska, and a dozen other states.

The U.S. orbital defenses met them. Radar and optical networks in geosynchronous orbit picked out the U.S.S.R. warheads. The system guided the low-orbit rocket fleets to collide with them, exploding instants before impact into shotgun blasts of ball bearings.

Any solid, striking a warhead at speeds of ten kilometes a second, would slam shock waves through the steel-jacketed structure. These waves made the high explosives inside ignite without the carefully designed symmetry that the designers demanded. An uneven explosion was useless; it could not compress the core twenty-five kilograms of plutonium to the required critical mass.

The entire weapon erupted into a useless spray of finely machined and now futile parts, scattering itself along a thousand-kilometer path.

This destroyed 90 percent of the

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U.S.S.R.'s first strike.

Angel

I hadn't seen an old lantern like that since I was a li'l girl. Mr. Ackerman came to wake us before dawn even, sayin' we had to make a good long distance that day. We didn't really want to go on down near Mobile, none of us, but the word we'd got from stragglers to the east was that that way was impossible, the whole area where the bomb went off was still sure death, prob'ly from the radioactivity.

The lantern cast a burnt-orange light over us as we ate breakfast. Corned beef hash, 'cause it was all that was left in the cans there; no eggs, of course.

The lantern was all busted, fouled with grease, its chimney cracked and smeared to one side with soot. Shed a wan and sultry glare over us, Bud and Mr. Ackerman and that old Turkey and Susan, sitting close to her box, up on the truck. Took Bud a whole day to get the truck right. And Johnny the boy — he'd been quiet this whole trip, not sayin' anything much even if you asked him. We'd agreed to take him along down toward Fairhope, where his folks had lived, the Bishops. We'd thought it was going to be a simple journey then.

Every one of us looked haggard and worn-down and not minding much the chill still in the air, even though things was warming up for weeks now. The lantern pushed back the seeping darkness and made me sure there were millions and millions of people doing this same thing, all across the nation, eating by a dim oil light and thinking about what they'd had and how to get it again and was it possible.

Then old Turkey lays back and looks like he's going to take a snooze. Yet on the journey here, he'd been the one wanted to get on with it soon's we had gas. It's the same always with a lazy man like that. He hates moving so much that once he gets set on it, he will keep on and not stop — like it isn't the moving he hates so much at all, but the starting and stopping. And once moving, he is so proud he'll do whatever to make it look easy for him but hard on the others, so he can lord it over them later.

So I wasn't surprised at all when we went out and got in the car, and Bud starts the truck and drives off real careful, and Turkey, he sits in the back of the Pontiac and gives directions like he knows the way. Which riles Mr. Ackerman, and the two of them have words.

Johnny

I'm tired of these people. Relatives, sure, but I was to visit them for a week only, not forever. It's the Mr. Ackerman I can't stand. Turkey said to me, "Nothing but gold drops out of

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his mouth, but you can tell there's stone inside." That's right.

They figure a kid nine years old can't tell, but I can.

Tell they don't know what they're doing.

Tell they all thought we were going to die. Only we didn't.

Tell Angel is scared. She thinks Bud can save us.

Maybe he can, only how could you say? He never lets on about anything.

Guess he can't. Just puts his head down and frowns like he was mad at a problem, and when he stops frowning, you know he's beat it. I like him.

Sometimes I think Turkey just don't care. Seems like he give up. But other times it looks like he's understanding and laughing at it all. He argued with Mr. Ackerman and then laughed with his eyes when he lost.

They're all O.K., I guess. Least they're taking me home.

Except that Susan. Eyes jump around like she was seeing ghosts. She's scary-crazy. I don't like to look at her.

Turkey

Trouble comes looking for you if you're a fool.

Once we found Ackerman's idea wasn't going to work real well, we should have turned back. I said that, and they all nodded their heads, yes, yes, but they went ahead and listened to him anyway.

So I went along.

I lived a lot already, and this is as good a time to check out as any.

I had my old .32 revolver in my suitcase, but it wouldn't do me a squat of good back there. So I fished it out, wrapped in a paper bag, and tucked it under the seat. Handy.

Might as well see the world. What's left of it.

MC355

The American orbital defenses had eliminated all but 10 percent of the Soviet strike.

MC355 reconstructed this within a root-means-square deviation of a few percent. It had witnessed only a third of the actual engagement, but it had running indices of performance for the MC net, and could extrapolate from that.

The warheads that got through were aimed for the land-based silos and C3I sites, as expected.

If the total armament of the two superpowers had been that of the old days, ten thousand warheads or more on each side, a 10-percent leakage would have been catastrophic. But gradual disarmament had been proceeding for decades now, and only a few thousand highly secure ICBMs existed. There were no quick-fire submarine short-range rockets at all, since they were deemed destabilizing. They had been negotiated away

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in earlier decades.

The submarines loaded with ICBMs were still waiting, in reserve.

All this had been achieved because of two principles: Mutual Assured Survival and I Cut, You Choose. The first half hour of the battle illustrated how essential these were.

The U.S. had ridden out the first assault. Its C3I networks were nearly intact. This was due to building defensive weapons that confined the first stage of any conflict to space.

The smallness of the arsenals arose from a philosophy adopted in the 1990s. It was based on a simple notion from childhood. In dividing a pie, one person cut slices, but then the other got to choose which one he wanted. Self-interest naturally led to cutting the slices as nearly equal as possible.

Both the antagonists agreed to a thousand-point system whereby each would value the components of its nuclear arsenal. This was the Military Value Percentage, and stood for the usefulness of a given weapon. The U.S.S.R. placed a high value on its accurate land-based missiles, giving them 25 percent of its total points. The U.S. chose to stress its submarine missiles.

Arms reduction then revolved about only what percentage to cut, not which weapons. The first cut was 5 percent, or fifty points. The U.S. chose which Soviet weapons were publicly destroyed, and vice versa: I Cut, You Choose. Each side thus reduced the weapons it most feared in the opponent's arsenal.

Technically, the advantage came because each side thought it benefitted from the exchange, by an amount depending on the ratio of perceived threat removed to the perceived protection lost.

This led to gradual reductions. Purely defensive weapons did not enter into the thousand-point count, so there was no restraints in building them.

The confidence engendered by this slow, evolutionary approach had done much to calm international waters. The U.S. and the U.S.S.R. had settled into a begrudging equilibrium.

MC355 puzzled over these facts for a long while, trying to match this view of the world with the onset of the war. It seemed impossible that either superpower would start a conflict when they were so evenly matched.

But someone had.

Susan

I had to go with Gene, and they said I could ride up in the cab, but I yelled at them — I yelled, no, I had to be with the T-Isolate all the time, check it to see it's workin right, be sure, I got to be sure.

I climbed on and rode with it, the fields rippling by us 'cause Bud was going too fast, so I shouted to him,

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and he swore back and kept on. Heading south. The trees whipping by us — fierce sycamore, pine, all swishing, hitting me sometimes — but it was fine to be out and free again and going to save Gene.

I talked to Gene when we were going fast, the tires humming under us, big tires making music swarming up into my feet so strong I was sure Gene could feel it and know I was there watching his heart jump every few minutes, moving the blood through him like mud but still carrying oxygen enough so's the tissue could sponge it up and digest the sugar I bled into him.

He was good and cold, just a half a degree high of freezing. I read the sensors while the road rushed up at us, the white lines coming over the horizon and darting under the hood, seams in the highway going *stupp, stupp, stupp,* the air clean and with a snap in it still.

Nobody beside the road we moving all free, nobody but us, some buds on the trees brimming with burnt-orange tinkling songs, whistling to me in the feather-light brush of blue breezes blowing back my hair, all streaming behind joyous and loud strong liquid-loud.

Bud

Flooding was bad. Worse than upstream.

Must have been lots snow this far down. Fat clouds, I saw them when it was worst, fat and purple and coming off the Gulf. Dumping snow down here.

Now it run off and taken every bridge.

I have to work my way around.

Only way to go clear is due south. Toward Mobile.

I don't like that. Too many people maybe there.

I don't tell the others following behind, just wait for them at the intersections and then peel out.

Got to keep moving.

Saves talk.

People around here must be hungry.

Somebody see us could be bad.

I got the gun on a rack behind my head. Big .30-30.

You never know.

MC355

From collateral data, MC355 constructed a probable scenario:

The U.S. chose to stand fast. It launched no warheads.

The U.S.S.R. observed its own attack and was dismayed to find that the U.S. orbital defense system worked more than twice as well as the Soviet experts had anticipated. It ceased its attack on U.S. satellites. These had proved equally ineffective, apparently due to unexpected American defenses of its surveillance satellites — retractable sensors, multiband

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shielding, advanced hardening.

Neither superpower struck against the inhabited space colonies. They were unimportant in the larger context of a nuclear war.

Communications between Washington and Moscow continued. Each side thought the other had attacked first.

But over a hundred megatons had exploded on U.S. soil, and no matter how the superpowers acted thereafter, some form of nuclear winter was inevitable.

And by a fluke of the defenses, most of the warheads that leaked through fell in a broad strip across Texas to the tip of Florida.

MC355 lay buried in the middle of this belt.

Turkey

We went through the pine forests at full clip, barely able to keep Bud in sight. I took over driving from Ackerman. The man couldn't keep up, we all saw that.

The crazy woman was waving and laughing, sitting on top of the coffin-shaped gizmo with the shiny tubes all over it.

The clay was giving way now to sandy stretches, there were poplars and gum trees and nobody around. That's what scared me. I'd thought people in Mobile would be spreading out this way, but we seen nobody.

Mobile had shelters. Food reserves. The Lekin administration started all that right at the turn of the century, and there was s'posed to be enough food stored to hold out a month, maybe more, for every man jack and child.

S'posed to be.

MC355

It calculated the environmental impact of the warheads it knew had exploded. The expected fires yielded considerable dust and burnt carbon.

But MC355 needed more information. It took one of its electric service cars, used for ferrying components through the corridors, and dispatched it with a mobile camera fixed to the back platform. The car reached a hill overlooking Mobile Bay and gave a panoramic view.

The effects of a severe freezing were evident. Grass lay dead, gray. Brown, withered trees had [illegible] snapped off.

But Mobile appeared intact. The skyline—

MC355 froze the frame and replayed it. One of the buildings was shaking.

Angel

We were getting all worried when Bud headed for Mobile, but we could see the bridges were washed out, no way to head east. A big wind was blowing off the Gulf, pretty bad, making the car slip around on the

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road. Nearly blew that girl off the back of Bud's truck. A storm coming, maybe, right up the bay.

Be better to be inland, to the east.

Not that I wanted to go there, though. The bomb had blowed off everythin' for twenty, thirty mile around, people said who came through last week.

Bud had thought he'd carve a way between Mobile and the bomb area. Mobile, he thought, would be full of people.

Well, not so we could see. We came down State 34 and through some small towns and turned to skirt along toward the causeway, and there was nobody.

No bodies, either.

Which meant prob'ly the radiation got them. Or else they'd moved on out. Taken out by ship, through Mobile harbor, maybe.

Bud did the right thing, didn't slow down to find out. Mr. Ackerman wanted to look around, but there was no chance, we had to keep up with Bud. I sure wasn't going to be separated from him.

We cut down along the river, fighting the wind. I could see the skyscrapers of downtown, and then I saw something funny and yelled, and Turkey, who was driving right then —the only thing anybody's got him to do on this whole trip, him just loose as a goose behind the wheel — Turkey looked sour but slowed down. Bud seen us in his rearview and stopped, and I pointed and we all got out. Except for that Susan, who didn't seem to notice. She was mumbling.

MC355

Quickly it simulated the aging and weathering of such a building. Halfway up, something had punched a large hole, letting in weather. Had a falling, inert warheard struck the building?

The winter storms might well have flooded the basement; such towers of steel and glass, perched near the tidal basin, had to be regularly pumped out. Without power, the basement would fill in weeks.

Winds had blown out windows.

Standing gap-toothed, with steel columns partly rusted, even a small breeze could put stress on the steel. Others would take the load, but if one buckled, the tower would shudder like a notched tree. Concrete would explode off columns in the basement. Moss-covered furniture in the lobby would slide as the ground floor dipped. The structure would slowly bend before nature.

Bud

Sounded like gunfire. Rattling. Sharp and hard.

I figure it was the bolts connecting the steel wall panels — they'd shear off.

I could hear the concrete floor

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panels rumble and crack, and spandrel beams tear in half like giant gears clashing with no clutch.

Came down slow, leaving an arc of debris seeming to hang in the air behind it.

Met the ground hard.

Slocum Towers was the name on her.

Johnny

Against the smashing building, I saw something standing still in the air, getting bigger. I wondered how it could do that. It was bigger and bigger and shiny turning in the air. Then it jumped out of the sky at me. Hit my shoulder. I was looking up at the sky. Angel cried out and touched me and held up her hand. It was all red. But I couldn't feel anything.

Bud

Damn one-in-a-million shot, piece of steel thrown clear. Hit the boy.

You wouldn't think a skyscraper falling two miles away could do that.

Other pieces come down pretty close, too. You wouldn't think.

Nothing broke, Susan said, but plenty bleeding.

Little guy don't cry or nothing.

The women got him bandaged and all fixed up. Ackerman and Turkey argue like always. I stay to the side.

Johnny wouldn't take the painkiller Susan offers. Says he doesn't want to sleep. Wants to look when we get across the bay. Getting hurt don't faze him much as it do us.

So we go on.

Johnny

I can hold up like any of them, I'll show them. It didn't scare me. I can do it.

Susan is nice to me, but except for the aspirin, I don't think my mom would want me to take a pill.

I knew we were getting near home when we got to the causeway and started across. I jumped up real happy, my shoulder made my breath catch some. I looked ahead. Bud was slowing down.

He stopped. Got out.

'Cause ahead was a big hole scooped out of the causeway like a giant done it when he got mad.

Bud

Around the shallows there was scrap metal, all fused and burnt and broken.

Funny metal, though. Hard and light.

Turkey found a piece had writing on it. Not any kind of writing I ever saw.

So I start to thinking how to get across.

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Turkey

The tidal flats were a-churn, murmuring ceaseless and sullen like some big animal, the yellow surface dimpled with lunging splotches that would burst through now and then to reveal themselves as trees or broken hunks of wood, silent dead things bobbing along beside them that I didn't want to look at too closely. Like under there was something huge and alive, and it waked for a moment and stuck itself out to see what the world of air was like.

Bud showed me the metal piece all twisted, and I say, "That's Russian," right away 'cause it was.

"You never knew no Russian," Angel says right up.

"I studied it once," I say, and it be the truth even if I didn't study it long.

"Goddamn," Bud says.

"No concern of ours," Mr. Ackerman says, mostly because all this time riding back with the women and child and old me, he figures he doesn't look like much of leader anymore. Bud wouldn't have him ride up there in the cabin with him.

Angel looks at it, turns it over in her hands, and Johnny pipes up, "It might be radioactive!"

Angel drops it like a shot. "What!"

I ask Bud, "You got that counter?"

And it was. Not a lot, but some.

"God a'mighty," Angel says.

"We got to tell somebody!" Johnny cries, all excited.

"You figure some Rooushin thing blew up the causeway?" Bud says to me.

"One of their rockets fell on it, musta been," I say.

"A *bomb?*" Angel's voice is a bird screech.

"One that didn't go off. Headed for Mobile, but the space boys, they scragged it up there—" I pointed straight up.

"Set to go off in the bay?" Angel says wonderingly.

"Musta."

"We got to tell somebody!" Johnny cries.

"Never you mind that," Bud says. "We got to keep movin'."

"How?" Angel wants to know.

Susan

I tell Gene how the water clucks and moans through the trough cut in the causeway. Yellow. Scummed with awful brown froth and growling green with thick soiled gouts jutting up where the road was. It laps against the wheels as Bud guns the engine and creeps forward, me clutching to Gene and watching the reeds to the side stuck out of the foam like metal blades stabbing up from the water, teeth to eat the tires, but we crush them as we grind forward across the shallow yellow flatness. Bud weaves among the stubs of warped metal — from Roosha, Johnny calls up to me — sticking up like trees all rootless,

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suspended above the streaming, empty, stupid waste and desolating flow.

Turkey

The water slams into the truck like it was an animal hitting with a paw. Bud fights to keep the wheels on the mud under it and not topple over onto its side with that damn casket sitting there shiny and the loony girl shouting to him from on top of *that.*

And the rest of us riding in the back, too, scrunched up against the cab. If she gets stuck, we can jump free fast, wade or swim back. We're reeling out rope as we go, tied to the stump of a telephone pole, for a grab line if we have to go back.

He is holding it pretty fine against the slick yellow current dragging at him, when this log juts sudden out of the foam like it was coming from God himself, dead at the truck. A rag caught on the end of it like a man's shirt, and the huge log is like a whale that ate the man long ago and has come back for another.

"No! No!" Angel cries. "Back up!" But there's no time.

The log is two hands across, easy, and slams into the truck at the side panel just behind the driver, and Bud sees it just as it stove in the steel. He wrestles the truck around to set off the weight, but the wheels lift and the water goes gushing up under the truck bed, pushing it over more.

We all grab onto the Isolate thing or the truck and hang there, Mr. Ackerman giving out a burst of swearing.

The truck lurches again.

The angle steepens.

I was against taking the casket thing 'cause it just pressed the truck down in the mud more, made it more likely Bud'd get stuck, but now it is the only thing holding the truck against the current.

The yellow froths around the bumpers at each end, and we're shouting — to surely no effect, of course.

Susan

The animal is trying to eat us, it has seen Gene and wants him. I lean over and strike at the yellow animal that is everywhere swirling around us, but it just takes my hand and takes the smack of my palm like it was no matter at all, and I start to cry, I don't know what to do.

Johnny

My throat filled up, I was so afraid.

Bud, I can hear him grunting as he twists at the steering wheel.

His jaw is clenched, and the woman Susan calls to us, "Catch him! Catch Gene!"

I hold on, and the waters suck at me.

Turkey

I can tell Bud is afraid to gun it and start the wheels to spinning 'cause

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he'll lose traction and that'll tip us over for sure.

Susan jumps out and stands in the wash downstream and pushes against the truck to keep it from going over. The pressure is shoving it off the ford, and the casket, it slides down a foot or so, the cables have worked loose. Now she pays because the weight is worse, and she jams herself like a stick to wedge between the truck and the mud.

If it goes over, she's finished. It is a fine thing to do, crazy but fine, and I jump down and start wading to reach her.

No time.

There is an eddy. The log turns broadside. It backs off a second and then heads forward again, this time poking up from a surge. I can see Bud duck, he has got the window up and the log hits it, the glass going all to smash and scatteration.

Bud

All over my lap it falls like snow. Twinkling glass.

But the pressure of the log is off, and I gun the sunbitch.

We root out of the hollow we was in, and the truck thunks down solid on somethin'.

The log is ramming against me. I slam on the brake.

Take both hands and shove it out. With every particle of force I got.

It backs off and then heads around and slips in front of the hood, bumping the grill just once.

Angel

Like it had come to do its job and was finished and now went off to do something else.

Susan

Muddy, my arms hurting. I scramble back in the truck with the murmur of the water all around us. Angry with us now. Wanting us.

Bud makes the truck roar, and we lurch into a hole and out of it and up. The water gurgles at us in its fuming stinking rage.

I check Gene and the power cells. they are dead.

He is heating up.

Not fast, but it will wake him. They say even in the solution he's floating in, they can come out of dreams and start to feel again. To hurt.

I yell at Bud that we got to find power cells.

"Those're not just ordinary batteries, y'know," he says.

"There're some at DataComm," I tell him.

We come wallowing up from the gum-yellow water and onto the highway.

Gene

Sleeping . . . slowly. . . . I can sti

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feel . . . only in sluggish . . . moments . . . moments . . . not true sleep but a drifting, aimless dreaming . . . faint tugs and ripples . . . hollow sounds. . . . I am underwater and drowning . . . but don't care . . . don't breathe. . . . Spongy stuff fills my lungs . . . easier to rest them . . . floating in snowflakes . . . a watery winter . . . but knocking comes . . . goes . . . jolts . . . slips away before I can remember what it means . . . . Hardest . . . yes . . . hardest thing is to remember the secret . . . so when I am in touch again . . . DataComm will know . . . what I learned . . . when the C3I crashed . . . when I learned. . . . It is hard to clutch onto the slippery, shiny fact . . . in a marsh of slick, soft bubbles . . . silvery as air . . . winking ruby-red behind my eyelids. . . . Must snag the secret . . . a hard fact like shiny steel in the spongy moist warmness. . . . Hold it to me. . . . Something knocks my side . . . a thumping. . . . I am sick. . . . Hold the steel secret . . . keep. . . .

MC355

The megatonnage in the Soviet assault exploded low — ground-pounders, in the jargon. This caused huge fires, MC355's simulation showed. A pall of soot rose, blanketing Texas and the South, then diffusing outward on global circulation patterns.

Within a few days, temperatures dropped from balmy summer to near-freezing. In the Gulf region where MC355 lay, the warm ocean continued to feed heat and moisture into the marine boundary layer near the shore. Cold winds rammed into this water-ladened air, spawning great roiling storms and deep snows. Thick stratus clouds shrouded the land for at least a hundred kilometers inland.

All this explained why MC355's extended feelers had met chaos and destruction. And why there were no local radio broadcasts. What the ElectroMagnetic Pulse did not destroy, the storms did.

The remaining large questions were whether the war had gone on, and if any humans survived in the area at all.

Mr. Ackerman

I'd had more than enough by this time. The girl Susan had gone mad right in front of us, and we'd damn near all drowned getting across.

"I think we ought to get back as soon's we can," I said to Bud when we stopped to rest on the other side.

"We got to deliver the boy."

"It's too disrupted down this way. I figured on people here, some civilization."

"Somethin' got 'em."

"The bomb."

"Got to find cells for that man in the box."

"He's near dead."

"Too many gone already. Should

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save one if we can."

"We got to look after our own."

Bud shrugged, and I could see I wasn't going to get far with him. So I said to Angel, "The boy's not worth running such risks. Or this corpse."

Angel

I didn't like Ackerman before the war, and even less afterward, so when he started hinting that maybe we should shoot back up north and ditch the boy and Susan and the man in there, I let him have it. From the look on Bud's face, I knew he felt the same way. I spat out a real choice set of words I'd heard my father use once on a grain buyer who'd weaseled out of a deal, stuff I'd been saving for years, and I do say it felt *good*.

Turkey

So we run down the east side of the bay, feeling released to be quit of the city and the water, and heading down into some of the finest country in all the South. Through Daphne and Montrose and into Fairhope, the moss hanging on the trees and now and then actual sunshine slanting golden through the green of huge old mimosas.

We're jammed into the truck bed, hunkered down because the wind whipping by has some sting to it. The big purple clouds are blowing south now.

Still no people. Not that Bud slows down to search-good.

Bones of cattle in the fields, though. I been seeing them so much now I hardly take notice anymore.

There's a silence here so deep that the wind streaming through the pines seems loud. I don't like it, to come so far and see nobody. I keep my paper bag close.

Fairhope's a pretty town, big oaks leaning out over the streets and a long pier down at the bay with a park where you can go cast fishing. I've always liked it here, intended to move down until the prices shot up so much.

We went by some stores with windows smashed in, and that's when we saw the man.

Angel

He was waiting for us. Standing beside the street, in jeans and a floppy yellow shirt all grimy and not tucked in. I waved at him the instant I saw him, and he waved back. I yelled, excited, but he didn't say anything.

Bud screeched on the brakes. I jumped down and went around the tail of the truck. Johnny followed me.

The man was skinny as a rail and leaning against a telephone pole. A long, scraggly beard hid his face, but the eyes beamed out at us, seeming to pick up the sunlight.

"Hello!" I said again.

"Kiss." That was all.

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"We came from . . ." and my voice trailed off because the man pointed at me.

"Kiss."

Mr. Ackerman

I followed Angel and could tell right away the man was suffering from malnutrition. The clothes hung off him.

"Can you give us information?" I asked.

"No."

"Well, why not, friend? We've come looking for the parents of—"

"Kiss first."

I stepped back. "Well, now, you have no right to demand—"

Out of the corner of my eye, I could see Bud had gotten out of the cab and stopped and was going back in now, probably for his gun. I decided to save the situation before somebody got hurt.

"Angel, go over to him and speak nicely to him. We need—"

"Kiss now."

The man pointed again with a bony finger.

Angel said, "I'm not going to go—" and stopped because the man's hand went down to his belt. He pulled up the filthy yellow shirt to reveal a pistol tucked in his belt.

"Kiss."

"Now friend, we can—"

The man's hand came up with the pistol and reached level, pointing at us.

"Pussy."

Then his head blew into a halo of blood.

Bud

Damn if the one time I needed it, I left it in the cab.

I was still fetching it out when the shot went off.

Then another.

Turkey

A man shows you his weapon in his hand, he's a fool if he doesn't mean to use it.

I drew out the pistol I'd been carrying in my pocket all this time, wrapped in plastic. I got it out of the damned bag pretty quick while the man was looking crazy-eyed at Angel and bringing his piece up.

It was no trouble at all to fix him in the notch. Couldn't have been more than thirty feet.

But going down he gets one off, and I feel like somebody pushed at my left calf. Then I'm rolling. Drop my pistol, too. I end up smack face-down on the hardtop, not feeling anything yet.

Angel

I like to died when the man flopped down, so sudden I thought he'd slipped, until then the bang registered.

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I rushed over, but Turkey shouted, "Don't touch him."

Mr. Ackerman said, "You idiot! That man could've told us—"

"Told nothing," Turkey said. "He's crazy."

Then I notice Turkey's down, too. Susan is working on him, rolling up his jeans. It's gone clean through his big muscle there.

Bud went to get a stick. Poked the man from a safe distance. Managed to pull his shirt aside. We could see the sores all over his chest. Something terrible it looked.

Mr. Ackerman was swearing and calling us idiots until we say that. Then he shut up.

Turkey

Must admit it felt good. First time in years anybody ever admitted I was right.

Paid back for the pain. Dull, heavy ache it was, spreading. Susan gives me a shot and a pill and has me bandaged up tight. Blood stopped easy, she says. I clot good.

We decided to get out of there, not stopping to look for Johnny's parents.

We got three blocks before the way was blocked.

It was a big metal cylinder, fractured on all sides. Glass glittering around it.

Right in the street. You can see where it hit the roof of a clothing store, Bedsole's, caved in the front of it, and rolled into the street.

They all get out and have a look, me sitting in the cab. I see the Russian writing again on the end of it.

I don't know much, but I can make out at the top CeKPeT and a lot of words that look like warning, including O'TTeH, which is *sick*, and some more I didn't know, and then II OTo'Aa, which is *weather*.

"What's it say?" Mr. Ackerman asks.

"That word at the top there's *secret,* and then something about biology and sickness and rain and weather."

"I thought you *knew* this writing," he says.

I shook my head. "I know enough."

"Enough to what?"

"To know this was some kind of targeted capsule. It fell right smack in the middle of Fairhope, biggest town this side of the bay."

"Like the other one?" Johnny says, which surprised me. The boy is smart.

"The one hit the causeway? Right."

"One *what?*" Mr. Ackerman asks.

I don't want to say it with the boy there and all, but it has to come out sometime. "Some disease. Biological warfare."

They stand there in the middle of Prospect Avenue with open, silent nothingness around us, and nobody says anything for the longest time. There won't be any prospects here for a long time. Johnny's parents we

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aren't going to find, nobody we'll find, because whatever came spurting out of this capsule when it busted open — up high, no doubt, so the wind could take it — had done its work.

Angel sees it right off. "Must've been time for them to get inside," is all she says, but she's thinking the same as me.

It got them into such a state that they went home and holed up to die, like an animal will. Maybe it would be different in the North or the West — people are funny out there, they might just as soon sprawl across the sidewalk — but down here people's first thought is home, the family, the only thing that might pull them through. So they went there and they didn't come out again.

Mr. Ackerman says, "But there's no smell," which was stupid because that made it all real to the boy, and he starts to cry. I pick him up.

Johnny

Cause that means they're all gone, what I been fearing ever since we crossed the causeway, and nobody's there, it's true, Mom Dad nobody at all anywhere just emptiness all gone.

MC355

The success of the portable unit makes MC355 bold.

It extrudes more sensors and finds not the racing blizzard winds of months before but rather warming breezes, the soft sigh of pines, a low drone of reawakening insects.

There was no nuclear winter.

Instead, a kind of nuclear autumn.

The swirling jet streams have damped, the stinging ultraviolet gone. The storms retreat, the cold surge has passed. But the electromagnetic spectrum lies bare, a muted hiss. The EMP silenced man's signals, yes.

Opticals, fitted with new lenses, scan the night sky. Twinkling dots scoot across the blackness, scurrying on their Newtonian rounds.

The Arcapel Colony.

Russphere.

US1.

All intact. So they at least have survived.

Unless they were riddled by buckshot-slinging antisatellite devices. But, no — the inflated storage sphere hinged beside the US1 is undeflated, unbreached.

So man still lives in space, at least.

Mr. Ackerman

Crazy, I thought, to go out looking for this DataComm when everybody's *dead*, just the merest step inside one of the houses proved that.

But they wouldn't listen to me. Those who would respectfully fall silent when I spoke now ride over my words as if I weren't there.

All because of that stupid incident with the sick one. He must have taken

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longer to die. I couldn't have anticipated that. He just seemed hungry to me.

It's enough to gall a man.

Angel

The boy is calm now, just kind of tucked into himself. He knows what's happened to his mom and dad. Takes his mind off his hurt, anyway. He bows his head down, his long dirty-blond hair hiding his expression. He leans against Turkey and they talk. I can see them through the back cab window.

In amongst all we've seen, I suspect it doesn't come through to him full yet. It will take awhile. We'll all take awhile.

We head out from Fairhope quick as we can. Not that anyplace else is different. The germs must've spread twenty, thirty mile inland from here. Which is why we seen nobody before who'd heard of it. Anybody close enough to know is gone.

Susan's the only one it doesn't seem to bother. She keeps crooning to that box.

Through Silverhill and on to Robertsdale. Same everywhere — no dogs bark, cattle bones drying in the fields.

We don't go into the houses.

Turn south toward Foley. They put this DataComm in the most inconspicuous place, I guess because secrets are hard to keep in cities. Anyway, it's in a pine grove south of Foley, land good for soybeans and potatoes.

Susan

I went up to the little steel door they showed me once and I take a little signet thing and press it into the slot.

Then the codes. They change them every month, but this one's still good, 'cause the door pops open.

Two feet thick it is. And so much under there you could spend a week finding your way.

Bud unloads the T-Isolate, and we push it through the mud and down the ramp.

Bud

Susan's better now, but I watch her careful.

We go down into this pale white light everywhere. All neat and trim.

Pushing that big Isolate thing, it takes a lot out of you. 'Specially when you don't know where to.

But the signs light up when we pass by. Somebody's expecting.

To the hospital is where.

There are places to hook up this Isolate thing, and Susan does it. She is O.K. when she has something to do.

MC355

The men have returned.

Asked for shelter.

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And now, plugged in, MC355 reads the sluggish, silky, grieving mind.

Gene

At last . . . someone has found the tap-in. . . . I can feel the images flit like shiny blue fish through the warm slush I float in. . . . someone . . . asking . . . so I take the hard metallic ball of facts and I break it open so the someone can see. . . . So slowly I do it . . . things hard to remember . . . steely-bright. . . . I saw it all in one instant. . . . I was the only one on duty then with Top Secret, Weapons Grade Clearance, so it all came to me . . . attacks on both U.S. and U.S.S.R. . . . some third party . . . only plausible scenario . . . a maniac . . . and all the counterforce and MAD and strategic options . . . a big joke . . . irrelevant . . . compared to the risk of accident or third parties . . . that was the first point, and we all realized it when the thing was only an hour old, but then it was too late. . . .

Turkey

It's creepy in here, everybody gone. I'd hoped somebody's hid out and would be waiting, but when Bud wheels the casket thing through these halls, there's nothing — your own voice coming back thin and empty, reflected from rooms beyond rooms beyond rooms, all waiting under here. Wobbling along on the crutches, Johnny fetched me, I get lost in this electronic city clean and hard. We are like something that washed up on the beach here. God, it must've cost more than all Fairhope itself, and who knew it was here? Not me.

Gene

A plot it was, just a goddamn plot with nothing but pure blind rage and greed behind it . . . and the hell of it is, we're never going to know who did it precisely . . . 'cause in the backwash whole governments will fall, people stab each other in the back . . . no way to tell who paid the fishing boat captains offshore to let the cruise missiles aboard . . . bet those captains were surprised when the damn things launched from the deck . . . bet they were told it was some kind of stunt . . . and then the boats all evaporated into steam when the fighters got them . . . no hope of getting a story out of *that* . . . all so comic when you think how easy it was . . . and the same for the Russians, I'm sure . . . dumbfounded confusion . . . and nowhere to turn . . . nobody to hit back at . . . so they hit us . . . been primed for it so long that's the only way they could think . . . and even then there was hope . . . because the defenses worked . . . people got to the shelters . . . the satellite rockets knocked out hordes of Soviet warheads . . . we surely lessened the damage, with the defenses and shelters, too . . . but we hadn't al-

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lowed for the essential final fact that all the science and strategy pointed to. . . .

Bud

Computer asked us to put up new antennas.

A week's work, easy, I said.

It took two.

It fell to me, most of it. Be weeks before Turkey can walk. But we got it done.

First signal comes in, it's like we're Columbus. Susan finds some wine and we have it all round.

We get US1. The first to call them from the whole South.

'Cause there isn't much South left.

Gene

But the history books will have to write themselves on this one. . . . I don't know who it was and now don't care . . . because one other point all we strategic planners and anyalysts missed was that nuclear winter didn't mean the end of anything . . . anything at all . . . just that you'd be careful to not use nukes anymore. . . . Used to say that love would find a way . . . but one thing I know . . . war will find a way, too . . . and this time the Soviets loaded lots of their warheads with biowar stuff, canisters fixed to blow high above cities . . . stuff your satellite defenses could at best riddle with shot but not destroy utterly, as they could the high explosive in nuke warheads. . . . All so simple . . . if you know there's a nuke winter limit on the megatonnage you can deliver . . . you use the nukes on C3I targets and silos . . . and then biowar the rest of your way. . . . A joke really . . . I even laughed over it a few times myself . . . we'd placed so much hope in ol' nuke winter holding the line . . . rational as all hell . . . the scenarios all so clean . . . easy to calculate . . . we built our careers on them. . . . But this other way . . . so simple . . . and no end to it . . . and all I hope's . . . hope's . . . the bastard started this . . . some Third World general . . . caught some of the damned stuff, too. . . .

Bud

The germs got us. Cut big stretches through the U.S. We were just lucky. The germs played out in a couple of months, while we were holed up. Soviets said they'd used the bio stuff in amongst the nukes to show us what they could do, long term. Unless the war stopped right there. Which it did.

But enough nukes blew off here and in Russia to freeze up everybody for July and August, set off those storms.

Germs did the most damage, though — plagues.

It was a plague canister that hit the Slocum building. That did in Mobile.

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The war was all over in a couple of hours. The satellite people, they saw it all.

Now they're settling the peace.

Mr. Ackerman

"We been sitting waiting on this corpse long enough," I said, and got up.

We got food from the commissary here. Fine, I don't say I'm anything but grateful for that. And we rested in the bunks, got recuperated. But enough's enough. The computer tells us it wants to talk to this man Gene some more. Fine, I say.

Turkey stood up. "Not easy, the computer says, this talking to a man's near dead. Slow work."

Looking around, I tried to take control, assume leadership again. Jutted out my chin. "Time to get back."

But their eyes are funny. Somehow I'd lost my real power over them. It's not anymore like I'm the one who led them when the bombs started.

Which means, I suppose, that this thing isn't going to be a new beginning for me. It's going to be the same life. People aren't going to pay me any more real respect than they ever did.

MC355

So the simulations had proved right. But as ever, incomplete.

MC355 peered at the shambling, adamant band assembled in the hospital bay, and pondered how many of them might be elsewhere.

Perhaps many. Perhaps few.

It all depended on data MC355 did not have, could not easily find. The satellite worlds swinging above could get no accurate count in the U.S. or the U.S.S.R.

Still — looking at them, MC355 could not doubt that there were many. They were simply too brimming with life, too hard to kill. All the calculations in the world could not stop these creatures.

The humans shuffled out, leaving the T-Isolate with the woman who had never left its side. They were going.

MC355 called after them. They nodded, understanding, but did not stop.

MC355 let them go.

There was much to do.

New antennas, new sensors, new worlds.

Turkey

Belly full and eye quick, we came out into the pines. Wind blowed through with a scent of the Gulf on it, fresh and salty with rich moistness.

The dark clouds are gone. I think maybe I'll get Bud to drive south some more. I'd like to go swimming one more time in those breakers that come booming in, taller than I am, down near Fort Morgan. Man never

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knows when he'll get to do it again.

Bud's ready to travel. He's taking a radio so's we can talk to MC, find out about the help that's coming. For now, we got to get back and look after our own.

Same as we'll see to the boy. He's ours, now.

Susan says she'll stay with Gene till he's ready, till some surgeons turn up can work on him. That'll be a long time, say I. But she can stay if she wants. Plenty food and such down there for her.

A lot of trouble we got, coming a mere hundred mile. Not much to show for it when we get back. A bumper crop of bad news, some would say. Not me. It's better to know than to not, better to go on than to look back.

So we go out into dawn, and there are the same colored dots riding in the high, hard blue. Like campfires.

The crickets are chirruping, and in the scrub there's a rustle of things moving about their own business, a clean scent of things starting up. The rest of us, we mount the truck and it surges forward with a muddy growl, Ackerman slumped over, Angel in the cab beside Bud, the boy already asleep on some blankets; and the forlorn sound of us moving among the windswept trees is a long and echoing note of mutual and shared desolation, powerful and pitched forward into whatever must come now, a muted note persisting and undeniable in the soft, sweet air.

Epilogue
(twenty-three years later)

Johnny

An older woman in a formless, wrinkled dress and worn shoes sat at the side of the road. I was panting from the fast pace I was keeping along the white strip of sandy, rutted road. She sat, silent and unmoving. I nearly walked by before I saw her.

"You're resting?" I asked.

"Waiting." Her voice had a feel of rustling leaves. She sat on the brown cardboard suitcase with big copper latches — the kind made right after the war. It was cracked along the side, and white cotton underwear stuck out.

"For the bus?"

"For Buck."

"The chopper recording, it said the bus will stop up around the bend."

"I heard."

"It won't come down this side road. There's not time."

I was late myself, and I figured she had picked the wrong spot to wait.

"Buck will be along."

Her voice was high and had the backcountry twang to it. My own voice still had some of the same sound, but I was keeping my vowels flat and right now, and her accent reminded me of how far I had come.

I squinted, looking down the long

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sandy curve of the road. A pickup truck growled out of a clay side road and onto the hardtop. People rode in the back along with trunks and a 3D. Taking everything they could. Big white eyes shot a glance at me, and then the driver hit the hydrogen and got out of there.

The Confederation wasn't giving us much time. Since the unification of the Soviet, U.S.A. and European/Sino space colonies into one political union, everybody'd come to think of them as the Confeds, period — one entity. I knew better — there were tensions and differences abounding up there — but the shorthand was convenient.

"Who's Buck?"

"My *dog*." She looked at me directly, as though any fool would know who Buck was.

"Look, the bus—"

"You're one of those Bishop boys, aren't you?"

I looked off up the road again. That set of words — being eternally *a Bishop boy* — was like a grain of sand caught between my back teeth. My mother's friends had used that phrase when they came over for an evening of bridge, before I went away to the university. Not my real mother, of course — she and Dad had died in the war, and I dimly remembered them.

Or anyone else from then. Almost everybody around here had been struck down by the Soviet bioweapons. It was the awful swath of those that cut through whole states, mostly across the South — the horror of it —that had formed the basis of the peace that followed. Nuclear and bioarsenals were reduced to nearly zero now. Defenses in space were thick and reliable. The building of those had fueled the huge boom in Confed cities, made orbital commerce important, provided jobs and horizons for a whole generation — including me. I was a ground-orbit liaison, spending four months every year at US3. But to the people down here, I was eternally that oldest Bishop boy.

Bishops. I was the only one left who'd actually lived here before the war. I'd been away on a visit when it came. Afterward, my Aunt and Uncle Bishop from Birmingham came down to take over the old family property — to save it from being homesteaded on, under the new Federal Reconstruction Acts. They'd taken me in, and I'd thought of them as Mom and Dad. We'd all had the Bishop name, after all. So I was a Bishop, one of the few natives who'd made it through the bombing and nuclear autumn and all. People'd point me out as almost a freak, a *real native*, wow.

"Yes, ma'am," I said neutrally.

"Thought so."

"You're . . . ?"

"Susan McKenzie."

"Ah."

We had done the ritual, so now we could talk. Yet some memory stirred. . . .

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"Something 'bout you . . ." She squinted in the glaring sunlight. She probably wasn't all that old, in her late fifties, maybe. Anybody who'd caught some radiation looked aged a bit beyond their years. Or maybe it was just the unending weight of hardship and loss they'd carried.

"Seems like I knew you before the war," she said. "I strictly believe I saw you."

"I was up north then, a hundred miles from here. Didn't come back until months later."

"So'd I."

"Some relatives brought me down, and we found out what'd happened to Fairhope."

She squinted at me again, and then a startled look spread across her leathery face. "My Lord! Were they lookin' for that big computer center, the DataComm it was?"

I frowned. "Well, maybe . . . I don't remember too well. . . ."

"Johnny. You're Johnny!"

"Yes, ma'am, John Bishop." I didn't like the little-boy ending on my name, but people around here couldn't forget it.

"I'm Susan! The one went with you! I had the codes for DataComm, remember?"

"Why . . . yes. . . ." Slow clearing of ancient, foggy images. "You were hiding in that center . . . where we found you. . . ."

"Yes! I had Gene in the T-Isolate."

"Gene. . . ." That awful time had been stamped so strongly in me that I'd blocked off many memories, muting the horror. Now it came flooding back.

"I saved him, all right! Yessir. We got married, I had my children."

Tentatively, she reached out a weathered hand, and I touched it. A lump suddenly blocked my throat, and my vision blurred. Somehow, all those years had passed and I'd never thought to look up any of those people — Turkey, Angel, Bud, Mr. Ackerman. Just too painful, I guess. And a little boy making his way in a tough world, without his parents, doesn't look back a whole lot.

We grasped hands. "I think I might've seen you once, actu'ly. At a fish fry down at Point Clear. You and some boys was playing with the nets — it was just after the fishing came back real good, those Roussin germs'd wore off. Gene went down to shoo you away from the boats. I was cleaning flounder, and I thought then, maybe you were the one. But somehow when I saw your face at a distance, I couldn't go up to you and say anything. You was skipping around, so happy, laughing and all. I couldn't bring those bad times back."

"I . . . I understand."

"Gene died two year ago," she said simply.

"I'm sorry."

"We had our time together," she said, forcing a smile.

"Remember how we—" And then I

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recalled where I was, what was coming. "Mrs. McKenzie, there's not long before the last bus."

"I'm waiting for Buck."

"Where is he?"

"He run off in the woods, chasing something."

I worked my backpack straps around my shoulders. They creaked in the quiet.

There wasn't much time left. Pretty soon now it would start. I knew the sequence, because I did maintenance engineering and retrofit on US3's modular mirrors.

One of the big reflectors would focus sunlight on a rechargable tube of gas. That would excite the molecules. A small triggering beam would start the lasing going, the excited molecules cascading down together from one preferentially occupied quantum state to a lower state. A traveling wave swept down the tube, jarring loose more photons. They all added together in phase, so when the light waves hit the far end of the hundred-meter tube, it was a sword, a gouging lance that could cut through air and clouds. And this time, it wouldn't strike an array of layered solid-state collectors outside New Orleans, providing clean electricity. It would carve a swath twenty meters wide through the trees and fields of southern Alabama. A little demonstration, the Confeds said.

"The bus — look, I'll carry that suitcase for you."

"I can manage." She peered off into the distance, and I saw she was tired, tired beyond knowing it. "I'll wait for Buck."

"Leave him, Mrs. McKenzie."

"I don't need that blessed bus."

"Why not?"

"My children drove off to Mobile with their families. They're coming back to get me."

"My insteted radio—" I gestured at my radio — "says the roads to Mobile are jammed up. You can't count on them."

"They *said* so."

"The Confed deadline—"

"I tole 'em I'd try to walk to the main road. Got tired, is all. They'll know I'm back in here."

"Just the same—"

"I'm all right, don't you mind. They're good children, grateful for all I've gone and done for them. They'll be back."

"Come with me to the bus. It's not far."

"Not without Buck. He's all the company I got these days." She smiled, blinking.

I wiped sweat from my brow and studied the pines. There were a lot of places for a dog to be. The land here was flat and barely above sea level. I had come to camp and rest, rowing skiffs up the Fish River, looking for places I'd been when I was a teenager and my mom had rented boats from a rambling old fisherman's house. I had turned off my radio, to get away from

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things. The big, mysterious island I remembered and called Treasure Island, smack in the middle of the river, was now a soggy stand of trees in a bog. The big storm a year back had swept it away.

I'd been sleeping in the open on the shore near there when the chopper woke me up, blaring. The Confeds had given twelve hours' warning, the recording said.

They'd picked this sparsely populated area for their little demonstration. People had been moving back in ever since the biothreat was cleaned out, but there still weren't many. I'd liked that when I was growing up. Open woods. That's why I came back every chance I got.

I should've guessed something was coming. The Confeds were about evenly matched with the whole rest of the planet now, at least in high-tech weaponry. Defense held all the cards. The big mirrors were modular and could fold up fast, making a small target. They could incinerate anything launched against them, too.

But the U.N. kept talking like the Confeds were just another nation-state or something. Nobody down here understood that the people up there thought of Earth itself as the real problem — eaten up with age-old rivalries and hate, still holding onto dirty weapons that murdered whole populations, carrying around in their heads all the rotten baggage of the past. To listen to them, you'd think they'd learned nothing from the war. Already they were forgetting that it was the orbital defenses that had saved the biosphere itself, and the satellite communities that knit together the mammoth rescue efforts of the decade after. Without the antivirals developed and grown in huge zero-g vats, lots of us would've caught one of the poxes drifting through the population. People just forget. Nations, too.

"Where's Buck?" I said decisively.

"He . . . that way." A weak wave of the hand.

I wrestled my backpack down, feeling the stab from my shoulder — and suddenly remembered the thunk of that steel knocking me down, back then. So long ago. And me, still carrying an ache from it that woke whenever a cold snap came on. The past was still alive.

I trotted into the short pines, over creeper grass. Flies jumped where my boots struck. The white sand made a *skree* sound as my boots skated over it. I remembered how I'd first heard that sound, wearing slick-soled tennis shoes, and how pleased I'd been at university when I learned how the acoustics of it worked.

"Buck!"

A flash of brown over to the left. I ran through a thick stand of pine, and the dog yelped and took off, dodging under a blackleaf bush. I called again. Buck didn't even slow down. I skirted left. He went into some oak

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scrub, barking, having a great time of it, and I could hear him getting tangled in it and then shaking free and out of the other side. Long gone.

When I got back to Mrs. McKenzie, she didn't seem to notice me. "I can't catch him."

"Knew you wouldn't." She grinned at me, showing brown teeth. "Buck's a fast one."

"Call him."

She did. Nothing. "Must of run off."

"There isn't time—"

"I'm not leaving without ole Buck. Times I was alone down on the river after Gene died, and the water would come up under the house. Buck was the only company I had. Only soul I saw for five weeks in that big blow we had."

A low whine from afar. "I think that's the bus," I said.

She cocked her head. "Might be."

"Come on. I'll carry your suitcase."

She crossed her arms. "My children will be by for me. I tole them to look for me along in here."

"They might not make it."

"They're loyal children."

"Mrs. McKenzie, I can't wait for you to be reasonable." I picked up my backpack and brushed some red ants off the straps.

"You Bishops was always reasonable," she said levelly. "You work up there, don't you?"

"Ah, sometimes."

"You goin' back, after they do what they're doin' here?"

"I might." Even if I owed her something for what she did long ago, damned if I was going to be cowed.

"They're attacking the United *States*."

"And spots in Bavaria, the Urals, South Africa, Brazil—"

" 'Cause we don't trust 'em! They think they can push the United *States* aroun' just as they please—" And she went on with all the clichés I heard daily from earthbound media. How the Confeds wanted to run the world and they were dupes of the Russians, and how surrendering national sovereignty to a bunch of self-appointed overlords was an affront to our dignity, and so on.

True, some of it — the Confeds weren't saints. But they were the only power that thought in truly global terms, couldn't *not* think that way. They could stop ICBMs and punch through the atmosphere to attack any offensive capability on the ground — that's what this demonstration was to show. I'd heard Confeds argue that this was the only way to break the diplomatic logjam — *do* something. I had my doubts. But times were changing, that was sure, and my generation didn't think the way the prewar people did.

"— we'll never be ruled by some outside—"

"Mrs. McKenzie, there's the bus! Listen!"

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The turbo whirred far around the bend, slowing for the stop.

Her face softened as she gazed at me, as if I recalling memories. "That's all right, boy. You go along, now."

I saw that she wouldn't be coaxed or even forced down that last bend. She had gone as far as she was going to, and the world would have to come the rest of the distance itself.

Up ahead, the bus driver was probably behind schedule for this last pick-up. He was going to be irritated and more than a little scared. The Confeds would be right on time, he knew that.

I ran. My feet plowed through the deep, soft sand. Right away I could tell I was more tired than I'd thought and the heat had taken some strength out of me. I went about two hundred meters along the gradual bend, was nearly within view of the bus, when I heard it start up with a rumble. I tasted salty sweat, and it felt like the whole damned planet was dragging at my feet, holding me down. The driver raced the engine, in a hurry.

He had to come toward me as he swung out onto Route 80 on the way back to Mobile. Maybe I could reach the intersection in time for him to see me. So I put my head down and plunged forward.

But there was the woman back there. To get to her, the driver would have to take the bus down that rutted, sandy road and risk getting stuck. With people on the bus yelling at him. All that to get the old woman with the grateful children. She didn't seem to understand that there were ungrateful children in the skies now — she didn't seem to understand much of what was going on — and suddenly I wasn't sure I did, either.

But I kept on.

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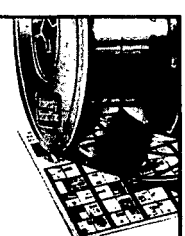

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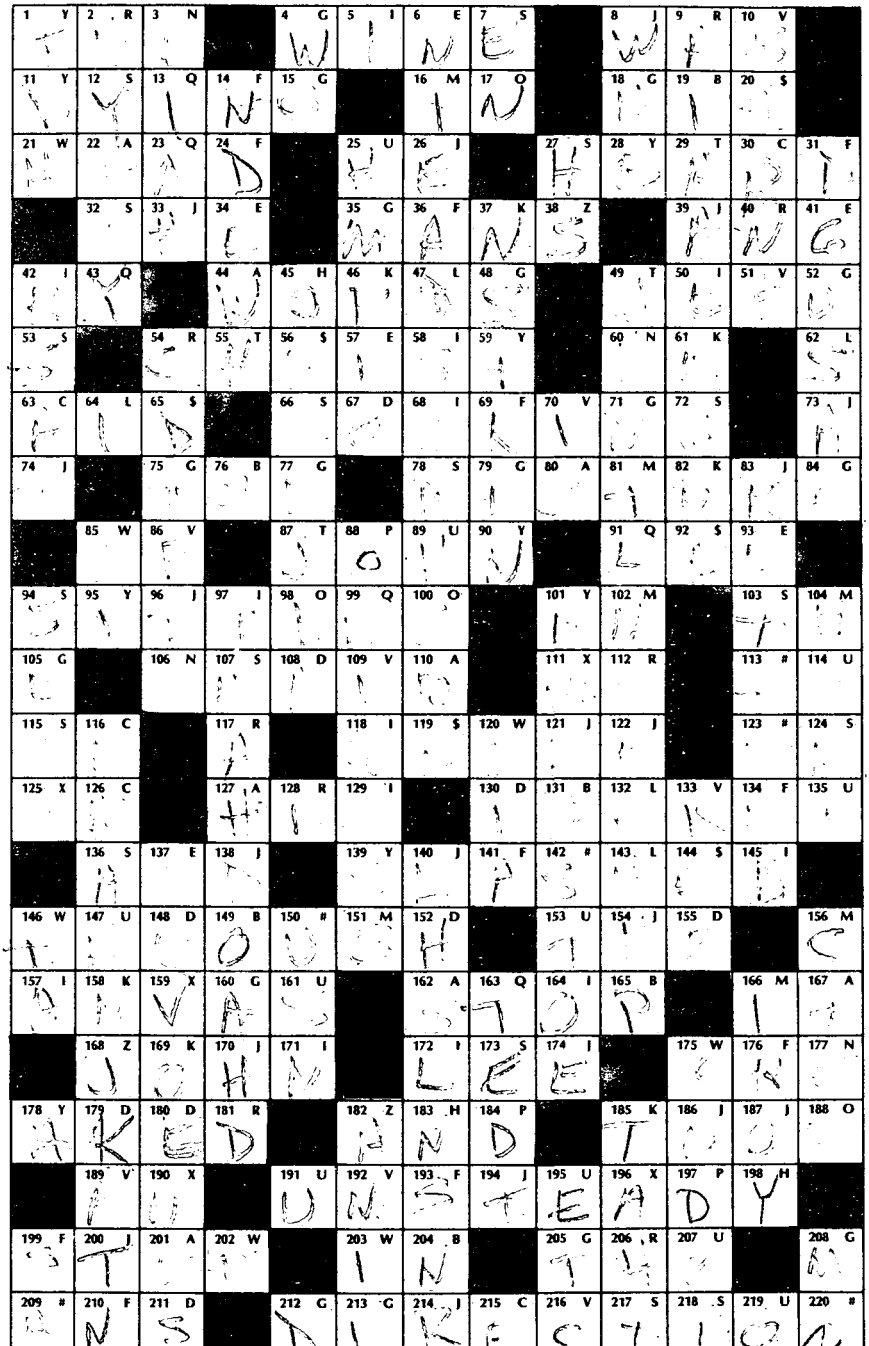

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Acrostic Puzzle

by Rachel Cosgrove Payes

This puzzle contains a quotation from a science fiction story. First, guess the clues and write the words in the numbered blanks beside the clues. Put these letters in the matching blocks in the puzzle. (The end of a line is not necessarily the end of a word. Words end with black squares.) If your clue words are correct, you will see words forming in the puzzle blocks. If you can guess some of these words, put the letters into the blanks for the clues, over the appropriate numbers. This will help you to guess more words. The first letters of the correctly worked clues spell the name of the author and the title of the sf work from which the quotation is taken.

A. ___ ___fly Solution, Sheldon, (two words).
167 127 22 162 80 110 201 44

B. River Circling Gaea.
131 165 76 19 149 204

C. ___ hooks, to steer sandworms.
126 63 116 215 30

D. Cirocco's rabbit hole, (two words).
148 152 180 108 211 130 67 179 155

E. SUMMER, Crowley.
34 6 41 57 137 93

F. Queen of Air ___ ___ (2 words).
36 210 31 24 141 176 69 14 134 193
199

G. A ___ ___ ___ Clarke, (three words).
35 77 105 75 79 71 15 4 213 205
18 208 84 212 52 48 160

H. Delany's TALES OF NEVER ___
198 45 183

I. Gordy's Hugo winner, (three words).
129 68 172 145 5 50 42 157 58 118
171 164 97

J. Where Harlan's beast yells, (six words).
39 74 200 33 26 170 122 73 83 96
186 121 194 154 174 8 187 214 140 138

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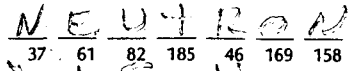
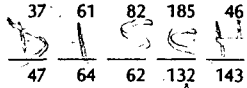
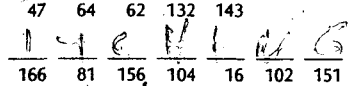
K. STAR, Niven.



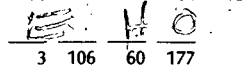
L. Campbell Award winner.



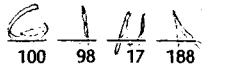
M. Joke powder.



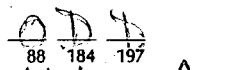
N. ____ ROUND HIS BONES, Disch.



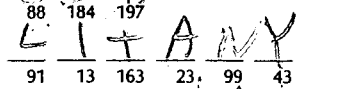
O. Absurd, eccentric person.



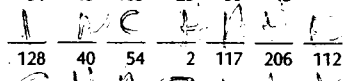
P. JOHN, Stapledon.



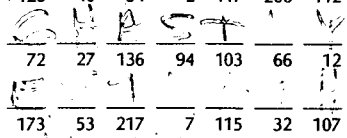
Q. OF SH'REEV, Watkins and Snyder.



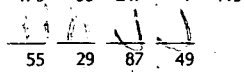
R. Progress nonmetrically, (two words).



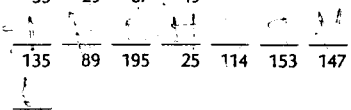
S. The ____ ____ ____ Reign, Wellman, (three words).



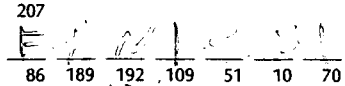
T. Holy journey on Dune.



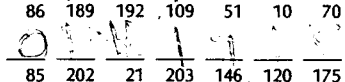
U. ____ ____ Series, Aldiss, (two words).



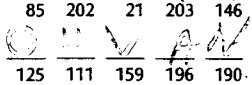
V. Excuse for missing WorldCon, (three words).



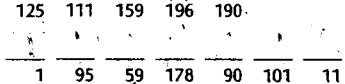
W. As in diabase.



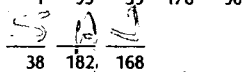
X. SLAN author attention getter (two words).



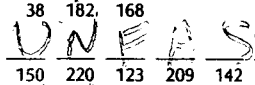
Y. Inhabitants of Gaea.



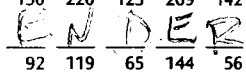
Z. Teak.



#. Insecure.



$. Card game.



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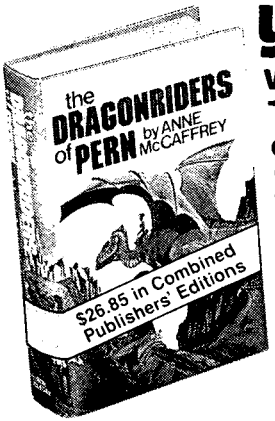

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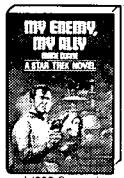

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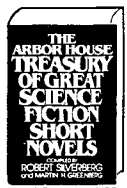

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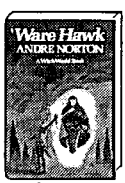

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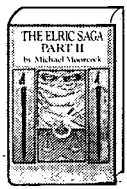

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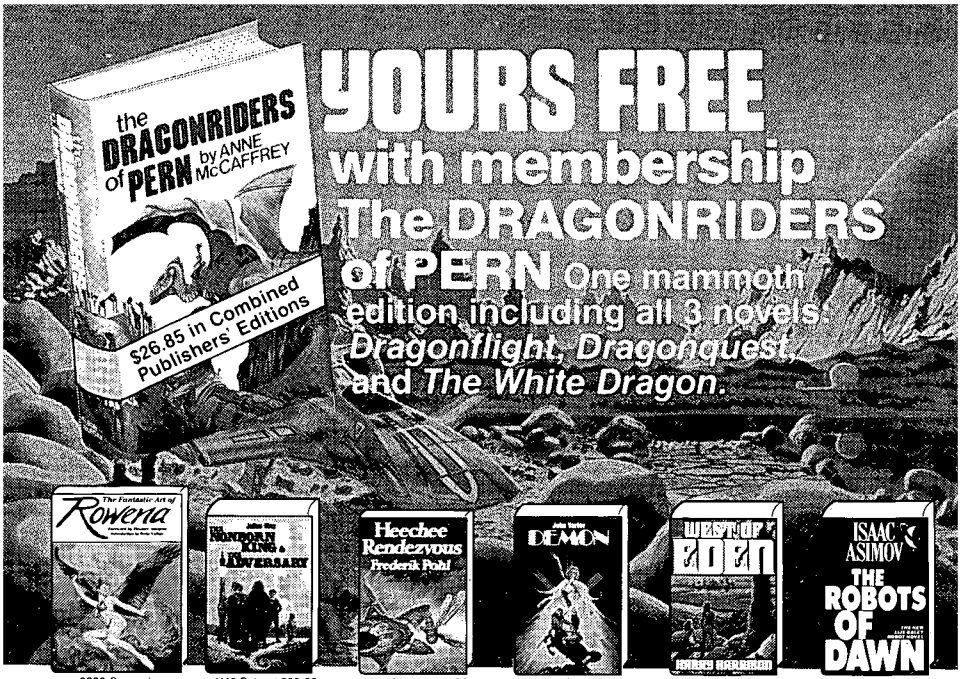
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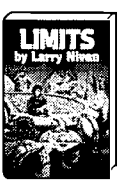

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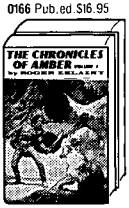

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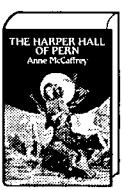

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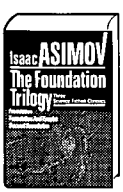

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